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Sub-Theme: Global Trends in Anatomical Training and Practice

BOOK OF ABSTRACTS

T1001. An Alteration in the Histoarchitecture and Function of the Pituitary Gland: A focus on the consumption of *Garcinia kola* seeds

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Introduction: The pituitary gland produces the hormone Prolactin which is responsible for lactation in females. Acidophils are the prolactin-secreting cells of the pituitary. **Aim:** This research investigated the effects of the ethanolic extract of *Garcinia kola* seeds on lactation. **Materials and Methods:** Twenty-five adult female Wistar rats with an average weight of 170g were used. They were divided into five groups (1-5) of five animals each and given rat chow and water *ad libitum*. Group 1 served as the control and received distilled water, groups 2, 3, and 4 received ethanol extract of *Garcinia kola* seed at 30mg/kg, 100mg/kg, and 1000mg/kg, respectively, group 5 served as the standard control and was given 2.5mg of bromocriptine orally for a period of 20days. On the 20th day, Animals were sacrificed and the pituitary glands harvested for histological assessment. Blood samples were also collected for hormonal assay. **Results:** The results of the hormonal assay showed an increase in the levels of estrogen and progesterone compared to the control, while prolactin showed lower levels compared to the control. The histological sections of the pituitary gland showed a massive decline in the number of acidophils in groups 2, 3, 4, and 5 when compared to group 1. Cell count of the sections also showed a significant ($p<0.05$) decrease in the number of acidophils present in the treated groups. **Conclusion:** It should be noted that *Garcinia kola* seed could interfere with the lactation efficiency of the pituitary gland in adult female Wistar rats by reducing the number of acidophilic cells of the anterior pituitary gland and the lactation hormones.

Keywords: *Prolactin, Acidophils, Garcinia kola, Pituitary, Lactation*

T1002. Long-Term Metabolic Effects of High-Fructose Diet on Global Cerebral Ischemia in Male Wistar Rats

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Introduction: The co-existence of metabolic disorders with cerebral ischemia is known to be considerably detrimental to the nervous system. **Aim**: The study determined the long-term effects of high-fructose diet (HFD)-induced metabolic disorders and cerebral ischemia on neurological, cognitive, and emotional performance in male Wistar rats. **Materials and Methods**: Rats were assigned to four groups: sham control, sham fructose, ischemic control, and ischemic fructose. The sham fructose and ischemic fructose rats received 20% fructose in their water for 11 weeks. During this period, body weight and biochemical parameters were measured. At the end of the 11th week, the ischemic control and ischemic fructose rats were subjected to global cerebral ischemia by common carotid artery ligation. The neurological test was scored between 6 and 48-hours post-ischemia. Forty-eight hours post-ischemia, three animals from each group were sacrificed for hippocampal immunohistochemical staining. Cognitive and emotional tests were performed between days 13-25 post-ischemia, and the rats were sacrificed at post-ischemic day 30. **Results**: fructose intake led to an increase in body weight, blood glucose, and reduced insulin sensitivity. Co-morbidity of fructose intake and cerebral ischemia resulted in hyperlipidemia, an increase in liver and adipocyte damage, which worsened the neurological performance, increased microglia numbers, and produced learning and emotional skills alteration at two weeks post-ischemia. **Discussion**: HFD worsened neurological, cognitive, and emotional functions after cerebral ischemia.

Keywords: *Metabolic disorder, High-fructose diet, Cerebral ischemia, Cognitive function, Neurological performance*.

T1003. Patterns of Frontal Sinus Aplasia in Adult Nigerians

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Introduction: Frontal sinus (FS) aplasia may be misdiagnosed as FS pathology. The awareness of this variant during endoscopic neurosurgical procedures through the frontal sinus is important to prevent intraoperative complications. Additionally, FS aplasia acts as an auxiliary tool in personal identification. **Aim of Study:** To determine the patterns of FS aplasia in adult Nigerians. **Materials and Methods:** This retrospective study evaluated skull Computed Tomography (CT) images of 336 patients aged above 20 years at the Radiology Department of a tertiary hospital in Nigeria following ethical approval. The frontal bone was assessed bilaterally on axial, coronal, and sagittal sections for FS agenesis. Data were categorized based on gender and 10-year age groups and analyzed using the Statistical Package for Social Sciences version 23. The frequencies of FS aplasia were presented in percentages, and the chi-square was used to evaluate for gender and side differences. A p-value of <0.05 was considered statistically significant. **Results:** The prevalence of FS aplasia was 44,13.1%, with higher bilateral (31,9.2%) than unilateral (13,3.9%) occurrence. The prevalence of unilateral FS aplasia was 2.1% and 1.8% on the right and left sides, respectively. There was a statistically significant side difference in the prevalence of FS aplasia (p=0.001). The patients in the 60-69 years' age group had the highest prevalence of unilateral and bilateral FS aplasia (5.5% and 16.4%, respectively). The gender and age differences in the prevalence of FS aplasia were not statistically significant (p=0.380,0.746, 0.391). **Conclusion:** The prevalence of FS aplasia in our population was not influenced by gender or age. The neurosurgeons and radiologists in our region should be cognizant of the patterns elucidated in this study to avoid misdiagnosis and minimize complications during endoscopic surgeries.

Keywords: frontal, sinus, aplasia, agenesis

T1004. Morphological Variants of the Uncinate Process in Adult Nigerians

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Introduction: The variants of the uncinate process (UP) influence the patency of the osteomeatal complex, hence impairing the paranasal sinus ventilation and drainage, predisposing to chronic rhinosinusitis. **Aim of Study:** To elucidate the morphological variants of the UP in adult Nigerians. **Materials and Methods:** This retrospective descriptive study was carried out in the Radiology department of Delta State University Teaching Hospital, Nigeria, following ethical approval (EREC/PAN/2020/030/0371). Brain Computed Tomographic (CT) images of 336 adult patients were used. The variants of the UP were evaluated based on the site of superior attachment, orientation, deviation, atelectasis, and pneumatization. Data were analyzed using the Statistical Package for Social Sciences version 23. The frequencies were expressed as percentages. Chi-square test was used to evaluate gender and side differences in the prevalence of variants. A p-value of<0.05 was considered statistically significant. **Results:** The UP commonly inserted superiorly onto the lamina papyraecea (61.9%), followed by the middle turbinate (24.1%) and the skull base (14%). Horizontally oriented UP was more common (58.6%) compared to vertical UP (41.4%). The prevalence of the medial and lateral deviation of the tip of the uncinate process was 38.7% and 10.7%, respectively, with significant gender differences ($p<0.05$). The prevalence of the uncinate bulla was 9.5%. Atelectatic UP was not observed. **Conclusion:** The findings of this study enlighten on the existence of the variants of the UP in adult Nigerians with varying prevalence from previous documented literature from other populations. It is important for radiologists and otorhinolaryngologists in our region to preoperatively evaluate CT images of the sinonasal region for these variants to minimize surgical complications during endoscopic sinus surgery.

KEYWORDS: uncinate; pneumatization; atelectasis; attachment; deviation; orientation

T1005. Biochemical derangement in the ocular tissue of adult male rats following long-term varied concentrations of sucrose diet

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Introduction: There is increasing concern that consuming diets rich in sugar content plays a role in the recent increase in metabolic diseases. Sucrose, a form of carbohydrate (containing glucose and fructose subunits), is a known compound essential for energizing daily bioenergetic processes. Various scientific reports have established unreplaceable role of carbohydrate in biological processes and the functional role of sucrose implicated in several metabolic diseases with associated attendant consequences on several body tissues. Despite being globally researched, its functional perturbations on the ocular tissue remain elusive. This research elucidates more on the biochemical indices occasioned by long term fed sucrose diet on the lens, cornea, and sclera in adult male Wistar rats. **Materials and Methods:** Twenty (20) male Wistar rats were randomly grouped into four (A-D) (n=5). Groups B-D were treated with varying concentrations of sucrose supplying energy daily at 10%, 20%, and 30% calorie diet, respectively, while group A was the control. Treatment lasted for six (6) months in strict adherence to standard laboratory procedures for animal care and use. Rats; ocular tissue was excised (lens, cornea, and sclera were isolated, respectively) for laboratory analysis. **Result and Discussion:** The result showed significant alterations in the biochemical parameters (protein, lipid profiles, total antioxidant, and oxidative stress) assayed in ocular tissue (lens, cornea, and sclera), accompanied by derangement in these parameters in ocular tissues examined. These alterations are associated with long-term treatment with varying concentrations of a sucrose diet.

KEYWORDS: Wistar rats, sucrose diet, ocular tissue.

T1006. Characterization of cerebellar synaptic activities in orchidectomized insulin-resistant Sprague-Dawley rats

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Aim of the study: Androgen deprivation can be achieved through testosterone antagonists (chemical castration) with or without orchidectomy. In this study, a rat model was used to characterize cerebellar structural and functional changes that might be associated with a subset population of androgen-deprived insulin-resistant rats. **Materials and Methods**: For this purpose, thirty-six (36) presumably healthy male rats were randomly divided into six groups, A, B, C, D, E, F and treatment lasted for 30 days in the various groups as follows; n-6, Group A=Control; Group B=Orchidectomy only; Group C = Flutamide (10mg); Group D = Flutamide (20mg); Group E = Orchidectomy + Flutamide (10mg); Group F = Orchidectomy + Flutamide (20mg). Tissues processed for histology, histochemistry, and biochemical parameters. **Results:** Results from histological examination showed degenerative changes in the Purkinje layer of the cerebellum of the rats. Also, orchidectomy + flutamide-treated groups reported an increase in serum glucose levels in Sprague-Dawley rats. There was a decrease in serum testosterone levels after orchidectomy + flutamide treatment, which invariably led to disrupted synaptic plasticity in the cerebellum. **Conclusion:** In conclusion, androgen deprivation caused by orchidectomy+flutamide reduces serum testosterone levels, causing degenerative changes in Purkinje layers of the cerebellum in the rat, closely affecting motor coordination and learning.

KEYWORDS: androgen deprivation, cerebellum, orchidectomy, flutamide, Sprague-Dawley rats

T1007. Effects of Trans-Cinnamaldehyde on Hippocampal Histomorphology and Functions in Insulin-resistant Rats

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Introduction: The incidence of insulin-resistance is on the increase globally. Earlier reports linked impaired insulin signaling to cognitive decline, suggesting that improving insulin signaling could enhance neuronal survival. Trans-cinnamaldehyde (TCA) is an active component of cinnamon, and it has many pharmacological properties. However, the effect of TCA on insulin resistance-induced cognitive deficit is unclear. **Aim:** To investigate the effects of trans-cinnamaldehyde on hippocampal histomorphology and functions in insulin-resistant rats. **Materials and Methods**: Sixty four adult female Wistar rats were used for the study, to induce insulin-resistance, High Fat Diet (HFD) was administered for eight weeks, followed by low dose (30mg/kg bw) streptozotocin intraperitoneally; and oral administration of low and high doses (40 and 60 mg/kg bw) of TCA for four weeks, the animals were divided into eight groups with the following treatments; A- control group, B-insulin resistant, C- TCA alone (high dose), D- Insulin-resistant + TCA (high dose) with normal diet, E- Insulin-resistant + TCA (high dose) with high fat diet, F-TCA alone (low dose), G- Insulin-resistant + TCA (low dose) with normal diet and H- Insulin-resistant + TCA (low dose) with high fat diet. Insulin resistance was determined using the homeostasis model assessment of insulin resistance (HOMA-IR). Histoarchitectural and immunohistological changes were evaluated using histological and immunohistochemical techniques. **Results:** Administration of TCA significantly reduced insulin resistance when compared with the untreated rats. Trans-cinnamaldehyde restores the histoarchitecture of the hippocampus of insulin-resistant rats. **Conclusion:** The study concluded that TCA protected the hippocampus from insulin-resistance-induced neuronal degeneration. The study recommended that trans-cinnamaldehyde be explored as a therapy for insulin-resistance-induced cognitive impairment.

KEYWORDS: Trans-Cinnamaldehyde, insulin-resistance, hippocampus

T1008. Nephroprotective Effect of Aqueous Extract of *Ficus exasperata* on Gentamicin-induced Nephrotoxicity of Adult Male Wistar Rats

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Introduction: Drug induced nephrotoxicity is a major health problem; this study is designed to investigate the nephroprotective effect of administration of aqueous extract of *Ficus exasperata(FEE)* on Gentamicin-induced nephrotoxicity. **Materials and Methods**: Twenty- four adult male Wistar rats, weighing 160g-200 g was used for this study. The rats were divided into six (6) groups of four (4) rats. The rats were acclimatized for two weeks and allowed free access to a standard dry pellet diet and water. The rats in group (A) served as the control group and received food pellets and water for fourteen (14) days. Rats in Group B were administered intraperitoneally with 100mg/kg of Gentamicin only. Groups C and D were administered daily with aqueous extract of FE (100mg/kg & 200mg/kg, respectively) for 14 days. Groups E and F were treated with the extract orally for 7 days and administered with Gentamicin and extract for the next seven (7) days. On day 15th, the rats were weighed and sacrificed. The kidney was harvested for histological investigation. Blood samples were collected via cardiac puncture for biochemical analysis to ascertain serum creatinine, blood urea nitrogen level, and serum protein level. Data obtained from the study were analyzed using one-way ANOVA, and a P-value less than 0.05 was considered statistically significant. **Results:** Group B showed significantly high levels of serum creatinine and blood nitrogen urea level when compared to the normal control group. This indicates a great level of kidney damage as a result of gentamicin induction. There was an alteration to the normal range of values for creatinine, urea, and protein levels of all groups treated with the extract. Histological sections in the normal control showed normal kidney histology, with normal glomeruli surrounded by renal tubules. There was a great level of tubular necrosis in group B, showing kidney toxicity. Groups treated with *FEE* showed no tubular necrosis, with normal glomeruli, and no basal membrane disruption. **Conclusion:** This study indicates that *FEE* protects the kidney against Gentamicin- induced nephrotoxicity, which may be due to its antioxidant effect.

KEYWORDS: FEE: Ficus exasperate extract, Gentamicin, Nephrotoxicity, Serum creatinine.

T1009. Hippocampus Concentration of Heavy Metals in Wistar Rats (*Rattus Norvegicus*) Exposed to Hyoscyamine Fraction of *Datura Stramonium* L. Seeds through Lactation

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Introduction: Hyoscyamine is a tropane alkaloid that is found in *Datura stramonium* (*D. stramonium*) and is used to treat gastrointestinal disorders. Heavy metals are metallic elements with a specific density above 5 g/cm^3 compared to water. **Aim of the Study**: The study aimed to determine the amounts of Cu, Ni, Pb, and Zn in the hippocampus of adult Wistar rats after exposure to the hyoscyamine fraction of *D. stramonium* Linn seeds during lactation. **Materials and Methods**: Fresh seeds of *D. stramonium* L. were procured, macerated, and fractionated. Twenty-four (24) Wistar rats, weighing 150-250 grams, were used for the study. Eight (8) rats of equal gender were mated and divided into control and treated groups. The equivalent body weight of normal saline and 400 mg/kg body weight of hyoscyamine fraction were orally administered to the nursing rats, respectively, on the lactational days (LD) 1-21. The hippocampus was dissected, and the heavy metals quantified using an atomic absorption spectrophotometer (AAS500 Pg). The data were expressed as mean ± SEM. Student's-test was used to compare the mean differences between the groups using *Minitab* 17 (LLC., U.K.) statistical package software. $P < 0.05$ was statistically considered significant. **Results and Discussion**: The Pb has the highest concentration in both the control (30.30±2.19 mg/l) and treated group (25.63±1.13 mg/l) groups. The nickel (Ni) concentration increased significantly ($p < 0.014$) in the treated group. The dentate gyrus (DG) region of the hippocampus in the treated group showed mild nuclear hyperchromasia, cytoplasmic vacuolations, karyolitic, and pyknotic cells. **Conclusion**: We conclude, hyoscyamine fraction of *D. stramonium* L. seeds exposure during lactation accumulates heavy metals and results in neurodegeneration in the hippocampus of Wistar rats at adulthood.

KEYWORDS: D. stramonium, hippocampus, hyoscyamine, lactation, heavy metals.

T1010. Neuroprotective Mechanism of Virgin Coconut Oil in the Prefrontal Cortex of Aluminum Chloride-treated Rats

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Introduction: Virgin coconut oil (VCO) has been used as a medicinal treatment for a number of diseases, such as diabetes and neurodegenerative diseases. It has also been previously reported to exert a neuroprotective effect on the prefrontal cortex of $AlCl_3$-treated rats, but its mechanism remains an unresolved question. **Aim of the Study**: Here, we explored the potential neuroprotective mechanism of VCO action on the prefrontal cortex of Wistar rats treated with $AlCl_3$. **Materials and Methods:** We used the Barnes maze apparatus to assess the cognitive performance of animals in response to $AlCl_3$ insult on the brain of animals. We also utilized standard immunostaining protocol to examine the effect of $AlCl_3$ on the expression of plaques of β-amyloid, astrocytic response, and synaptic density in the prefrontal cortex of treated rats, and we probed the possible modulatory role of VCO in this animal model. Finally, we investigated the effect of these treatments on brain insulin signaling since brain insulin dysfunction underlies Alzheimer's disease (AD) pathology, and heavy metals have also been previously reported to alter insulin signaling. **Results:** The result of our findings showed that $AlCl_3$treatment for 28 days significantly produced cognitive deficit in rat which was the result of increased inflammation in this animal model, and VCO was able to subtly revert this condition. **Conclusion:** We also report that VCO administration to animals significantly decreased the expression of BACE-1, insulin, insulin receptor, and GSK-3β.
Conclusively, we report the beneficial effect of VCO against cortical inflammation induced by $AlCl_3$ administration to rats, which was also paralleled by a decrease in the expression of BACE-1, insulin, and insulin receptor.

KEYWORDS: Virgin coconut oil, $AlCl_3$, prefrontal cortex, neuroprotection

T1011. Amelioration of Olfactory Deficits and Olfacto-Bulbar Glutamate and GABA by *Nigella Sativa* Oil in Developmentally Modelled Schizophrenia in Balb/C Mice

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Introduction: Olfactory deficit is an endophenotype of Schizophrenia as characterized by disruption in synaptic transmission in the olfactory apparatus. *Nigella sativa* oil (NSO) is a highly therapeutic and scientifically evidenced herbal medicine. **Aim of study**: With our hypothesis of ameliorative tendencies, this study investigated the effects of *Nigella sativa* oil (NSO) on the olfactory parameters of social isolation rearing (SIR) models of developmental schizophrenia through neurobehavioral, neurochemical, and histological assays on the olfactory bulb. **Materials and Methods**: (60) BALB/c mice (3 weeks) were equally divided immediately post-weaning into 6 groups namely, CTRL (reared socially on normal chow only), SIR (socially isolated on normal chow only), NS (administered 1ml/kg NSO daily), SIR-NSC (socially isolated but concurrently administered 1ml/kg NSO daily), SIR-NS (socially isolated on normal chow before administration with 1ml/kg NSO for same duration as isolated), NS-SIR (dams pre-administered 1ml/kg NSO for 10 days prior to mating while their pups were commenced on isolation immediately post-weaning). Social isolation rearing was executed through individualized holding of each mouse in a separate cage (with adequate spacing and ventilation), devoid of all tactile and visual cues from all other mice. Isolation and NSO administration periods each lasted 8 weeks. **Results**: Olfactory sensitivity and discrimination were defective in SIR mice, but higher in all mice that were pre-, post-, or concurrently treated with NSO. Glutamate and GABA levels were higher in the olfactory bulb of mice that received NSO compared with untreated SIR mice. Weights: Brain-body ratio was also higher in all NSO-treated mice than in the untreated ones. NSO-treated groups had lower neural density compared to the SIR group. **Conclusion**: While olfactory deficits were reaffirmed in socially isolated mice as models of schizophrenia, NSO was shown to ameliorate and protect against the neurobehavioral, histological, and neurochemical olfacto-schizophrenic endophenotypes in BALB/c mice.

Keywords: Schizophrenia, Social Isolation Rearing, BALB/c, *Nigella sativa*, Olfacto-therapeutic.

T1012. The Cerebellum under Stress: Dietary African Walnut (*Tetracarpidium conophorum*) Abrogates Oxidative Stress-driven Neuropathology induced by Chronic Unpredictable Stress

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Introduction: Chronic stress affects different brain areas and is implicated in the development of many psychopathological syndromes in humans, including major depression and anxiety disorders, which are risk factors for the development of a variety of human ailments. However, consumption of a healthy diet abundant in antioxidant and anti-inflammatory phytochemicals, of which the walnut diet provides, offers an effective and least expensive way to prevent neurodegeneration. **Aim:** Although extensive research has been carried out on walnuts, little or no work has been done on understanding the therapeutic potential of proper walnut dieting in the management of neurodegenerative disease, especially those related to the cerebellum. Herein, the role of African walnut (*Tetracarpidium conophorum*)-enriched diet in chronic stress-induced cerebellar neuropathology was investigated. **Materials and Methods:** Twenty-one (21) male Wistar rats were used for this investigation. Rats were randomly assigned to 3 groups (A, B, and C), each consisting of 7 rats (n = 7). Group A (Control group) was fed a control diet; group B rats were subjected to different chronic unpredictable stressors (CUS) + control diet for 21 days, while group C rats were subjected to CUS + Walnut-enriched diet for 21 days. Serum corticosterone levels, expression level of antioxidant and inflammatory markers, as well as cytoarchitectural changes in cerebellum were assessed by enzyme-linked immunosorbent assay (ELISA) and immunohistochemistry methods. **Results:** Walnut-enriched diet prevented astrogliosis, modulated the expression of serum corticosterone, and tumor necrotic factor-α in the cerebellum. A walnut-enriched diet also caused an improvement in the antioxidant profile, indicating that it suppressed chronic unpredictable stress-induced perturbations. **Conclusion:** Our findings suggest that African walnut exerts protective effects against oxidative stress-driven and inflammatory dysfunction by reducing serum corticosterone levels, tumor necrotic factor-α, modulating oxidative stress pathways, and preventing neuronal morphological damage in the cerebellum.

Keywords: African Walnut, Oxidative stress, Cerebellum, Chronic unpredictable stress, Tumor necrotic factor-α.

T1013. Effect of Cigarette Smoke Inhalation on the Hippocampus of Adult Female Wistar Rat

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Introduction: Female exposure to cigarette smoke has been a challenge to society due to the fact that female mental health is a major prerequisite for a healthier society and future. **Aim of the Study:** This work was carried out to examine the effect of cigarette smoke inhalation on the hippocampus of female Wistar rats. **Materials and Methods:** Fourteen Female Wistar rats weighing 150-200g were divided into two groups of 7rats each. Group A was the control group, and Group B was the experimental group, which was exposed to (2 sticks) of cigarette smoke daily in an inhalation chamber for 14 days. A neurobehavioral study was done before and after exposure, and the rats were sacrificed. Two rat brains were fixed in Bouin's fluid for histological studies, and the other five for antioxidant studies. **Results:** Results were analyzed using SPSS, and values were significant at $P \leq 0.05$. Results showed that animals in group B had a reduction in weight after the first week of exposure to the cigarette smoke. After a fourteen-day period of the experiment, group B animals had an increase in weight compared to the control. **Conclusion:** The neurobehavioral studies showed that group B animals took more time to discover the escape platform in a Morris water maze test compared to the control group. Histological study showed darkly stained medium-sized pyramidal cells in the hippocampus proper (conus ammonis) of group B rats. We therefore conclude that cigarette smoke inhalation has neurodegenerative effects on the hippocampus of female Wistar rats.

KEYWORDS: inhalation, cigarette smoke, neurobehavioral, hippocampus.

T1014. A Study on Neurological Effects of Marijuana and Codeine Intake on the Prefrontal-Hippocampal Cortex of Adult Male Wistar Rats

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Introduction: Drug abuse is becoming a thing of concern among young people in Africa and across the globe. Examples of drugs or substances abused are Codeine and Marijuana, etc. **Aim:** This study is aimed at assessing the effects of the ingestion of codeine and marijuana on memory, anxiety, neurohistology, lipid peroxidation, and antioxidant enzyme status. **Materials and methods:** Twenty (20) adult male Wistar rats with an average body weight of 120g were used for this study. They were divided into four groups (n=5): control, codeine, marijuana, and a group given both codeine and marijuana. The animals were exposed to drug treatment for ten (10) days. Behavioral tests for memory using the Y maze and anxiety using the tail suspension test were conducted. The animals were euthanized and brain tissues fixed in 4% PFA and processed for Hematoxylin and Eosin stain, Cresyl fast Violet, and glial fibrillary acidic protein (GFAP) stains for astrocytes, with focus on prefrontal-hippocampus cortex. Serum antioxidant activity of superoxide dismutase (SOD), glucose-6-phosphate dehydrogenase (G6PDH), Lactate dehydrogenase (LDH) activity, and lipid peroxidation enzyme marker –Malondialdehyde (MDA) were assessed. **Results:** The prefronto-hippocampal cortex of rats exposed to Codeine, Marijuana (B and C), and those given both drugs (D) were characterized with loss of neurons, necrosis, chromatolysis, and proliferation of astrocytes as compared with the control. However, combined drug use has more severe consequences. The group showed a severe loss of spatial memory, a reduced number of arm entries, and increased immobility time as compared with the Codeine and Marijuana groups. Group D had a severe decline in SOD and G6PDH serum activity and an elevation in lipid peroxidation as compared with B and C**. Conclusion:** The combined use of codeine and marijuana has more deleterious effects on neuronal cell integrity, memory, cognition, and antioxidant enzymes because it induces severe oxidative stress.

Keywords: Codeine, antioxidants, astrocytes, memory, anxiety.

T1015. Neuroprotective Effects of Lithium on Induced Brain Ischemia after Unilateral Common Carotid Artery Occlusion in Adult Male Wistar Rats

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Introduction: Ischemic injury to the brain in cardiovascular injury may progress to become a major cause of death. This is the sequence in stroke, which is preceded by a cardiovascular accident due to varying courses. Consequently, the neuroprotective activities against stroke continue to gain much attention. The advantages of natural products in ameliorating neural injuries have been elucidated. **Aim of the study:** We aim to study the potential neuroprotective effects of lithium in the treatment of induced ischemic stroke. **Materials and Methods:** This study was carried out on 32 male adult Wistar rats to evaluate the changes accompanying the delayed treatment with lithium in acute ischemic injury following left unilateral common carotid artery occlusion (UCCAO). The artery was occluded for 15 minutes and reperfused for 48hours. The rats were randomized into four groups (= 8). Group A was control; Group B, Lithium only (60 mg/kg daily for 7days); Group C had UCCAO only; Group D (UCCAO+Li) had UCCAO, followed by Lithium (60 mg/kg daily for 7days). Body and brain weight measurements, behavioral studies (Novel object recognition [NOR], Y-maze test), biochemical estimations (malondialdehyde [MDA], reduced glutathione [GSH], superoxide dismutase [SOD], Catalase [CAT]) were carried out, after which the animals were euthanized. Thereafter, tissues were harvested and processed for histology. **Results:** Weight changes across the groups were non-significant. The NOR and Y-maze results were significant ($p<0.05$), with the UCCAO group having a deficit of memory and learning function. Antioxidants SOD, CAT, GSH, and the oxidative stress marker, MDA, changes were statistically non-significant, although the level of MDA was elevated in the UCCAO group. Histological and morphological assessments were carried out, showing that the cerebral cortices and hippocampal region, cornu ammonis 1 (CA1), showed areas of neuronal damage, with the pyknotic indices being significantly high in the UCCAO group but reduced in the UCCAO +Li group. **Conclusion:** The experiment showed that the biochemical changes were not significantly altered, but behavioral and histomorphometric changes were altered by induced ischemia, which lithium ameliorated. This result suggested the neuroprotective effect of lithium in reversing the events of acute ischemia induced by unilateral common carotid artery occlusion in adult male Wistar rats.

KEYWORDS: Ischemia, Stroke, Reperfusion, Pyknotic index, Lithium.

T1016. Chaperonic Propensities of African Walnut (*Tetracarpidium conophorum*) in the Modulation of Glucocerebrosidase Pathway as a Therapeutic Target in Parkinson's Disease.

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Aim: The predominant accumulation of aggregated proteins is a key signature in neurodegenerative diseases such as Parkinson's and Alzheimer's diseases. There has also been a reciprocal link between Glucocerebrosidase (GCase) activity and alpha-synuclein accumulation/aggregation. Protein misfolding and aggregation are effectively modulated by molecular chaperons recognized as heat shock proteins (HSPs), and phytochemicals have been shown to activate the expression of HSPs. Herein, the chaperonic propensities of the ethanolic extract of African walnut (WNE) in Manganese-induced Parkinson-like neuropathology in the hippocampus were investigated. **Methodology:** 48 adult male rats weighing 185g±10g were randomly assigned into 6 (A – F) groups (n=8) and treated orally as follows: A-PBS (1 ml daily for 20 days), B-WNE (2 mg/kg daily for 20 days), C- WNE (4 mg/kg daily for 20 days), D-Mn (100 mg/kg daily for 20 days), E-Mn then WNE (100 mg/kg Mn daily for 20 days followed by 2 mg/kg WNE daily for subsequent 20 days), F-Mn then WNE (100 mg/kg Mn daily for 20 days followed by 4 mg/kg WNE daily for subsequent 20 days). **Results:** Rats treated with WNE expressed increased levels of HSP70 and HSP90 in comparison to the Mn-treated group. GCase activity also increased significantly in animals post-treated with WNE. Our results further revealed the therapeutic tendencies of WNE against Mn toxicity by modulating oligomeric α-synuclein levels, oxidative redox activity, and glucose bioenergetics. Furthermore, immunohistochemical evaluation revealed reduced expression of neurofibrillary tangles and reactive astrogliosis following WNE treatment. **Conclusion:** The ethanolic extract of African Walnut induced the activation of HSPs and increased the expression of the glucocerebrosidase gene in the hippocampus. Activated heat shock proteins suppressed neurodegenerative changes due to Manganism in the treated animals. WNE was also shown to modulate neuroinflammatory, bioenergetics, and neural redox balance in Parkinson-like neuropathology.

KEYWORDS: African Walnut, Molecular chaperon, Heat shock proteins, Glucocerebrosidase

T1017. The Effect of Lipopolysaccharide Model of Alzheimer's Disease and the Therapeutic Potential of Lycopene on the Cerebellum of Adult Male Wistar Rats.

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Introduction: Alzheimer's disease remains an incurable brain condition, whose development can only be moderated. Since molecular studies of AD began in earnest in the early 1980s, thousands of scientists and healthcare professionals have delved into all aspects of this complex syndrome, hoping to help patients now and prevent others from developing it in the future. **Aim of Study:** This research was designed to assess the effect of the lipopolysaccharide model of Alzheimer's disease and the therapeutic potential of lycopene on the cerebellum of adult male Wistar rats. **Materials and Methods:** This research process was carried out using Y maize, cotton wool, weighing balance, plastic cages, saw dust, methylated spirits, 70% Alcohol, lipopolysaccharide, lycopene, distilled water, needle and syringe, oral gavage needle, slides, microscopes, markers, dissecting sets, measuring cylinder, feeding cans, water troughs, animal feed, normal saline, stop watch, EDTA bottle and blood sample bottle, PBF, log book. According to the rats' (50) body weight (150mg/kg), LPS was administered intraperitoneally for 10 days. Afterwards, 15mg/kg volume of lycopene was administered orally for 10 days. Afterwards, a neurobehavioral test was conducted, followed by sacrifice, histological preparations of the rats' cerebellar tissues, staining procedure, and finally, the cerebellar slides were observed. **Results:** The study revealed a significant ($p<0.05$) change in the differential body weight. Reduction in locomotion and exploration. Histologically, there was a significant difference between LPS and both the curative and preventive groups. **Discussion:** From this research project work, it was thereby ascertained that the oral administration of lycopene protects the neurons from further toxic damage caused by the LPS model of Alzheimer's disease.
KEYWORDS: Alzheimer's disease (AD), Lipopolysaccharides (LPS), Lycopene

T1018. Anxiolytic Properties of Turmeric in Ketamine-induced Cerebellar Toxicity in Adult Wistar Rats

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Introduction*: Curcuma longa* is an important fraction of turmeric used as an antioxidant and anti-inflammatory. **Aim**: To determine the neuro-curative effects of *C. longa* in ketamine induced cerebellar toxicity of adult female Wistar rats. **Materials and Methods:** 30 adult Wistar rats were purchased from the animal house of AE-FUNAI with an initial weight of 150g or above. They were divided into five groups of six rats each after seven days of acclimatization. Group A served as the positive control and received water and feed *ad libitum*. Group B was given 10mg/kg of Ketamine only and served as the ketamine untreated group. Groups C, D, and E received intraperitoneal injection of 10mg/kg of Ketamine for 4 times at an interval of 2 days and 24 hours after the last dose. The said groups received 200mg/kg, 400mg/kg, and 600mg/kg of turmeric orally for two weeks. Groups C, D, and E served as low, medium, and high dose respectively. **Result:** There was a reduction in body weight of the animal, increased locomotive activity may be a result of ketamine, and a decrease in anxiety might result from turmeric. Biochemically, the concentration of GPO, GSH, and GR may be reduced due to the effect of the extract. The photomicrograph showed mild healing after treatment. **Conclusion**: Ketamine has been identified to have common characteristics such as neurotoxicity; turmeric showed its ameliorative effects on ketamine induced toxicity on the cerebellum.

Keywords: Anxiety; Anxiolytic; Anxiogenic; Toxicity; Turmeric

T1019. *Nigella Sativa* Oil Effectuated Neuroprotective and Curative Effects on the Motor Coordination Deficits Caused by Social Isolation Model of Schizophrenia in BALB/c Mice

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Introduction: Social isolation rearing is a trigger for psychiatric symptoms. Schizophrenia is a debilitating mental illness with motor coordination defects resulting from thalamic functions. *Nigella sativa* oil (NSO) is an evidence-based multi-therapeutic plant. **Aim of study**: This study evaluated the curative potential of NSO against motor coordination defects in social isolation rearing BALB/c mice model of schizophrenia. **Methods**: Sixty (60) BALB/c mice (3 weeks) were equally divided immediately after weaning into 6 groups namely, CTRL (reared socially on normal chow only), SIR (socially isolated on normal chow only), NS (administered 1ml/kg NSO daily), SIR-NSC (socially isolated but concurrently administered 1ml/kg NSO daily), SIR-NS (socially isolated on normal chow before administration with 1ml/kg NSO for same duration as isolated), NS-SIR (dams pre-administered 1ml/kg NSO for 10 days prior to mating while their pups were commenced on isolation immediately post-weaning). Social isolation rearing was executed through individualized holding of each mouse in a separate cage (with adequate spacing and ventilation), devoid of all tactile and visual cues from all other mice. **Results:** The socially isolated mice (SIR) spent the least duration of gripping the horizontal bars with the forelimb, which corroborates the results from other studies. The reverse was, however, the case with the NSO-treated groups, which showed a higher grip duration than the SIR mice. The histological assay showed distortion in the cells of the SIR group. Brain-body ratio was also significantly higher in all NSO-treated mice than in the untreated ones. Neuro-chemical assay revealed the greatest amount of glutamate in the NSO post-treated group, while the NSO concurrently treated group had the highest amount of GABA in the thalamus. **Discussion:** NSO had a neuroprotective effect on the thalamus of the treated groups, which is evident in the increased motor coordination, neurotransmission, and histology.

Keywords: Schizophrenia, Motor coordination, *Nigella sativa* oil, Social isolation

T1020. Immunomodulations of BDNF and P-53 in Ethidium Bromide-Induced Multiple Sclerosis in Wistar Rats Treated with *Solanum Lycopersicum*

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Aim of Study: The immunomodulation of BDNF and P-53 in ethidium bromide-induced multiple sclerosis in Wistar rats treated with *Solanum lycopersicum* was studied. **Materials and Methods:** Thirty (30) male Wistar rats were divided into six groups (n=6). 7cm of the abdominal skin segment of the trunk to tail of each rat was scraped off, and 0.5ml of Ethidium Bromide solution was applied to the scraped area. Group i, ii, iii, iv, v and vi received 0.5mls of Normal saline, 40mg/kg body weight of Tamsulosin hydrochloride, 40mg/kg body weight of *Solanum lycopersicum* aqueous leaf extract, 40mg/kg body weight of *Solanum lycopersicum* aqueous stem extract, 40mg/kg body weight of *Solanum lycopersicum* ethanol leaf extract, 40mg/kg body weight of *Solanum lycopersicum* ethanol stem extract respectively. The rats were weighed, sacrificed after 4weeks of administration, their brain were dissected out, the cerebral cortex was preserved for histological and Enzyme Linked Immunosorbent Assay (ELISA). Data was analyzed using ANOVA at $P < 0.05$. **Results and Discussion:** There was no significant difference in the body weight of rats across all groups. Histological evaluation showed the delineation of the cerebral cortex from the molecular to the multiform layer. There was a significant decrease in Brain Derived Neurotropic Factor (BDNF) of groups treated with *Solanum lycopersicum* aqueous stem, ethanol leaf, and stem extract (group iv, v and vi), which reveals its immunomodulatory role. The *Solanum lycopersicum* ethanol leaf extract group showed a significant decrease in P-53. **Conclusion:** *Solanum lycopersicum*was able to ameliorate the effect of ethidium bromide on the cerebral cortex, which may prove to be a neuroprotective agent.

Keywords: *Solanum lycopersicum,* Enzyme-Linked Immunosorbent Assay, P-53, Ethidium bromide

T1021. Neuroprotective Efficacy of Aqueous Turmeric Extract on Aluminum-induced Toxicity on the Prefrontal Cortex of Female Wistar Rats

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Introduction: Aluminum chloride ($AlCl_3$) is a toxicant that causes oxidative stress in the brain, resulting from neuronal tissue damage and neurodegenerative diseases. **Aim:** This study was designed to investigate the Effect of Aqueous Turmeric extract on $AlCl_3$ induced toxicity, impaired behavioral activities, neurodegeneration, and neuroarchitecture of the Pre-Frontal Cortex in Female Wistar rats. **Methodology:** 30 female Wistar rats were randomly divided into six groups, with each group comprising four rats. Group 1 (Distill water), Groups 2 and 3 were administered with Turmeric (500mg/Kg, b. w and 250mg/Kg, b. w respectively), Group 4 was administered with Aluminum Chloride (100mg/kg, b. w), Groups 5 and 6 were treated with Turmeric {(500mg/kg b. w and 250mg/Kg, b. w respectively) and subsequently $AlCl_3$ (100mg/kg b. w)}. The administration lasted for 17 days using an oral cannula. The animals went through behavioral investigations (open field test and Morris water maze) to test their explorative and cognitive abilities. The rats were sacrificed on the 19th day, the brains harvested, the prefrontal cortex excised, and then homogenized to analyze for Total Reactive Oxygen Species (TROS) and Nitrous Oxide (NO) levels. The tissues were thereafter taken for histological and immunohistochemical analysis. **Result:** Aluminum chloride exposure significantly caused an increase in oxidative stress, while a significant reduction in AChE activity levels was also recorded. An increased freezing period, reduced time in the Centre squares, and reduced transfer latency were also recorded. However, turmeric was able to mitigate all oxidative damages, AChE deregulation, anxiety, and memory index in its co-exposure with aluminum chloride. **Conclusion:** Turmeric extract as treatment can be efficacious in Aluminium chloride-induced neurotoxicity in Wistar rats.

KEYWORDS: Aluminum Chloride, Turmeric, Pre-frontal Cortex, Immuno-histochemistry

T2001. Protective Effect of Aqueous Extract of *Cucumis melo* on Stomach Ulcer in Adult Wistar Rats

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Introduction: A stomach ulcer occurs when the mucosal lining of the stomach is eroded. This condition has become rampant due to lots of factors, from microbial to over-the-counter drugs like non-steroidal anti-inflammatory drugs, amongst others. *Cucumis melo* fruit has been found to have many useful medicinal properties, like anti- inflammatory, free radical scavenging, etc. **Aim**: To determine the protective effect of aqueous extract of *Cucumis Melo* fruit on stomach ulcer of adult Wistar rats. **Methodology**: 30 Adult Wistar rats (100-150g) were randomly divided into six groups, A- F (n= 4). Cucumis Melo fruit extract was administered to four groups (B-E) in different proportions of 25%, 50%, 75%, and 100% aqueous solutions of *Cucumis melo* fruit extracts, respectively, for 14 days. Two groups (A & F) were used as positive and negative controls, respectively, and both received normal saline for 2weeks. The rats were subsequently fasted for 24 hours after the last extract administration, ulcer was induced using indomethacin (40mg/kg) for groups A-E. The rats were sacrificed by cervical dislocation, 24hours after ulcer induction. The stomachs of the rats were collected for ulcer scoring, and then histological and immunohistochemical examination (CD 31) was done. **Results**: The stomachs of rats that received the highest concentration of *Cucumis melo* fruit extract had no ulcer wounds when compared to the other treatment groups. **Discussion**: *Cucumis melo* tends to have anti-ulcer potential, and its potency appeared to increase according to the increment in the quantity consumed.

KEYWORDS: *Cucumis melo, Stomach ulcer, Indomethacin, CD 31*

T2002. Micro-anatomical Changes in the Pancreatic Architecture of Hyperglycemic Wistar Rats Treated with Methanolic Extract of *Tithonia diversifolia* (Wild Sunflower) Leaves

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Introduction: *Tithonia diversifolia* has been extensively used in traditional medicine to treat diseases like diabetes, malaria, inflammation, obesity, ulcers, and diarrhea. This research was carried out to assess blood glucose changes, body and pancreatic weight changes, and to evaluate the micro-anatomical changes in the pancreas of hyperglycemic Wistar rats treated with *Tithonia diversifolia*. **Aim of the Study:** The aim of the study was to carry out a series of investigations on the pancreas of hyperglycemic Wistar rats by checking histological and biochemical indices. **Materials and Methods:** A total of twenty Wistar rats were used in this study. The animals were grouped into four groups, with five animals each. Group A was the normoglycemic group treated with 2 mL of distilled water. Groups A&D received 1ml/kg of 0.1M citrate buffer at induction. Groups B & C were induced with 60mg/kg bw of streptozotocin dissolved in 0.1M of citrate buffer at pH 6.3, and treated with 2 mL of distilled water and 37.95mg/kg of the methanolic leaf extract of *Tithonia diversifolia,* respectively. Group D was the normoglycemic group treated with 37.95mg/kg of the extract. All animals were allowed access to feed and water *ad libitum*. The body weight and blood glucose of the animals were measured weekly. The animals were sacrificed after six weeks of oral administration using the cervical dislocation method. The pancreases were extracted, weighed, and fixed in Bouin's fluid, and processed for histological studies (H&E and Masson Trichrome). **Results:** The results showed that administration of the methanolic extract of *Tithonia diversifolia* leaves caused a reduction in blood glucose of the animals, weight gain, and ameliorative effects in the pancreatic architecture of hyperglycemic Wistar rats. **Discussion:** In conclusion, these findings showed that *Tithonia diversifolia* had anti-hyperglycemic and ameliorative properties on the pancreas of hyperglycemic Wistar rats.

KEYWORDS: *Tithonia diversifolia, hyperglycemic, histoarchitecture, micro-anatomical, Wistar rats.*

T2003. Extract of Al*oe Vera* Gel Attenuates Experimentally-Induced Ulcerative Colitis.

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Introduction: Ulcerative colitis is a disease of undetermined etiology and treatment. It affects the colon and rectum and typically involves the mucosa, manifesting as continuous areas of inflammation and ulceration. Aloe gel contains more than a hundred potentially active constituents of different classes. **Aim of the study:** This study investigated the effect of aloe gel on experimentally-induced ulcerative colitis. **Material and Methods:** Male Wistar rats were randomly allocated into groups A to F of six rats each. Ulcerative colitis was induced in rats in groups B to F by single intra-colonic administration of 2 mL of 4% acetic acid with a size 6F pediatric catheter. In contrast, group A received an equivalent volume of normal saline by the same route. Twenty-four hours after induction, rats in groups B and C received normal saline and a 1mg/kg daily dose of dexamethasone, respectively, while those in groups D, E, and F received 20, 40, and 60 mg/kg bw doses of aloe gel, respectively, for 14 days. They were sacrificed 12 hours after the last administration. We assessed disease progression by determining the clinical activity index, gross inflammation, histological alterations, the intensity of DNA in colon cells, and the tissue level of nitric oxide. **Results:** All measured parameters except DNA intensity increased significantly in group B rats. The quantitative distribution of DNA in colon cells was reduced significantly in this group. Aloe gel doses significantly reversed these changes in a dose-dependent manner. Dexamethasone showed lesser efficacy relative to the 60 mg dose of the extract. **Discussion:** Aloe vera gel has therapeutic potential in the treatment and management of ulcerative colitis. The most significant effects were observed in the groups treated with the highest dose of aloe gel (60mg/kg). The remediated potential of aloe gel in acetic acid-induced UC surpasses that of dexamethasone.

KEYWORDS: *Ulcerative Colitis, Aloe vera gel, Dexamethasone, Wistar rats*.

T2004. A Decade Study of the Incidence and Clinical Analysis of Ectopic Pregnancy at a Tertiary Hospital in Eastern Nigeria

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Introduction: Ectopic pregnancy (EP) is increasingly a fertility- and life-threatening gynecological condition in women. **Aim of study**: To determine the incidence, clinical presentation, gestational age at presentation, risk factors, and treatment modalities of ectopic pregnancy in a Nigerian population. **Materials and Methods**: This retrospective study was conducted at St. Charles Borromeo Specialist Hospital, Onitsha, Nigeria, from January, 2009 to December, 2018. Women admitted to the hospital, and those who completed their treatment, were included in this decade study. Information was obtained from patients' case notes in various wards as retrieved from the hospital's medical records unit. 105 case notes met the inclusion criteria. Data were analyzed using IBM SPSS, version 23. **Results**: From a total of 13,402 pregnancies, 119 were ectopic, giving an incidence of 0.89%. The majority of the women belonged to the age group of 26-30 years (37.1%). Patients with EP presented more between 7-8 weeks of gestational age (40%), though 7.6% were unsure of their last menstrual period. 80 EP cases (76.2%) were ruptured, while 25 (23.8%) were unruptured cases. Ectopic gestation occurred more at the Ampulla (51.4%) and, more at the right side (66.6%) than the left (33.4%). Pelvic inflammatory disease (30.4%) and prior abortion (20.0%) were major predisposing risk factors. Commonest clinical presentations were abdominal pain (92.38%), amenorrhea (57.14%), and vaginal bleeding (51.42%). 85.7% had Salpingectomy, 9.5% were medically managed. There was a maternal death (0.95%). **Conclusion:** EP remains a gynecological emergency. Diagnosis before rupture could offer an opportunity for successful medical management.
KEYWORDS: *Ectopic pregnancy, Amenorrhea, Salpingectomy, Gestational Age.*

T2005. Methanolic Leaves Extract of *Terminalia catappa* Mitigates the Hepatotoxic Effects of Lead Acetate in Adult Wistar Rats following Lead-induced Oxidative Stress

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Aim: This study assessed the effect of the methanolic extract of *Terminalia catappa* leaves on the liver of adult Wistar rats following lead-induced oxidative stress. **Methods:** Thirty-five (35) adult Wistar rats of both sexes weighing between 150g and 200g were grouped into five groups: A, B, C, D, and E of seven (7) per group. They were fed on grower's marsh and given water *ad-libitum.* Group A served as the control. Group B received 25mg/kg of *Terminalia catappa* only. Group C received 8.75mg/kg of lead acetate with 50mg/kg of *Terminalia catappa.* Group D received 10mg/kg of lead acetate with 100mg/kg of *Terminalia catappa*. Group E received 13mg/kg of lead acetate only. **Results:** Results indicated that lead acetate caused a significant decrease ($P<0.05$) in body weights which was more pronounced in group E compared to that of the group C and D. it also showed a significant increase ($P<0.05$) in the level of the hepatic enzymes ALT, AST and ALP which was an indication that lead acetate caused a severe pathological change in the liver parenchyma. This was supported by histological analysis that showed massive degenerative changes and dispersed hepatocyte cells, necrosis, and depletion of the glycoprotein granules inside the hepatocyte cells on histological analysis. **Conclusion:** exposure to lead acetate causes severely distorted histoarchitecture of the liver, resulting in a significant increase in liver enzymes with a decrease in body weight. However, the methanolic leaf extract of *Terminalia catappa* exhibited a protective effect against the lead acetate induced-toxicity in the liver of Wistar rats.

KEYWORDS: *Lead Acetate, Terminalia catappa. Hepatocytes, liver enzymes, hepatotoxicity*

T2006. Hypoglycemic Effect and Histoarchitectural Testicular Changes in Adult Male Hyperglycemic Wistar Rats Treated with Methanolic Extract of *Anchomanes Difformis*

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Introduction: The use of the *Anchomanes difformis* plant and other plants for medicine is an age-old practice; the plant has been reported to possess anti-diabetic functions among others.
Aim of the study: This research was designed to assess changes in blood glucose, testicular weight, and microanatomical testicular structure in Wistar rats treated with the methanolic extract of *Anchomanes difformis.* **Materials and methods:** Twenty adult Wistar rats were randomly assigned into four groups, A – D, of five animals each. Group A served as the normal control and received 3 mg/kg body weight of normal saline daily for six weeks. Groups B & C were induced with 60mg/Kg body weight (bw) of Streptozotocin, and treated with 3 mg/kg body weight of normal saline and 1650mg/Kg of methanolic leaf extract of *Anchomanes difformis,* respectively. Group D (normoglycemic group) was treated with 1650mg/Kg of the extract. The animals were sacrificed after six weeks via cervical dislocation. The testes were extracted, weighed, and fixed for histological studies using H&E and Masson Trichrome. **Results:** Group C rats reveal good glycemic control and a restorative testicular histoarchitecture when compared to groups B, D, and A, in which normal histological features were preserved.
Discussion and conclusion: These results suggest that the methanolic extract of *Anchomanes difformis* exhibits both anti-hyperglycemic and ameliorative properties on the testes of hyperglycemic Wistar rats.
Keywords: *Anchomanes difformis,* hyperglycemic, histoarchitecture, micro-anatomical, Wistar rats

T2007. Maternal Anthropometries and Sexual Dimorphism in Neonates: Determining Delivery Outcomes in Low-Risk Pregnancies at Alex Ekwueme Federal University Teaching Hospital, Abakaliki

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Introduction: Attempts to circumvent undesirable birth outcomes through spontaneous vaginal delivery in low-risk pregnancies have remained a global concern to date. **Aims:** We aim to correlate the maternal and neonatal anthropometries with delivery outcomes and ascertain how each of the anthropometric features affects male or female births. **Methods:** The study is a prospective cross-sectional study of pregnant mothers and their newborn babies, based on a convenient sampling technique. A total of 480 mothers who were identified by the gynecologist as having low risks of undesirable birth outcomes and their newborn babies in the gynecology ward of Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Nigeria, from 1st July to 1st December, 2019, volunteered to participate in this study. Maternal and neonatal anthropometries: weight, height, BMI, waist circumference (WC), hip circumference, birth head circumference (HC), and delivery outcomes: mode of delivery and duration of first and second stages of labor were considered. We adopted the guidelines of the Institute of Medicine for direct anthropometric measurements. **Results:** Male birth weight was dependent on maternal age, weight, and hip circumference (P<0.05). The chance of male birth through the vagina was dependent on maternal WC, and that of female birth was dependent on birth weight, while cases of Cesarean deliveries of female births were dependent on maternal WHR. Maternal age, weight, and height, and birth weight, length, and HC were associated with duration of labor (P <0.05).

Discussion: A male neonate is more likely to present a body stature that is proportionate to that of his mother at birth. Relatively large maternal waist or WHR at full-term pregnancy, advancement in maternal age, long birth length, and HC could enhance the option of Cesarean delivery in low-risk pregnancy.

Keywords: Birth weight, cervical dilatation, craniofacial macrosomia, gynecology protocol, vagina.

T2008. Evaluating Methods of Rat Euthanasia on the Liver and Kidney of Wistar Rats: Cervical Dislocation, Chloroform Inhalation, Diethyl Ether Inhalation, and Formalin Inhalation

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Introduction: A lot of procedural errors are committed at the point of sacrifice of research animals. **Aim of the Study**: This study compared four common methods of rodent sacrifice and their effects on the liver and kidney of Wistar rats. **Materials and Methods:** A questionnaire was distributed among Experimental and Clinical Anatomists of Nigeria (SECAN) during their annual conference as part of the preliminary studies. Twenty male Wistar rats weighing 160 to 200g were separated into four groups of five rats each. After two weeks of acclimatization, the animals were sacrificed: Group A by Cervical dislocation (control), Group B by chloroform inhalation, Group C by diethyl ether inhalation, and Group D by formalin inhalation. Blood was collected from the retroocular plexus. The liver and kidneys were harvested and fixed in 10% formalin for histological studies. **Results**; Result of our preliminary studies showed that 90% of our scientists use rats for their studies, out of which 50% sacrifice their animals using chloroform sedation. Fifteen percent (15%) use formalin inhalation, while 6.25% and 16.255 use diethyl ether and cervical dislocation, respectively. **Discussion**: Our results show that the methods of sacrifice showed adverse effects on the liver function test and kidney function tests of the rats, except for chloroform sedation, which only significantly increased aspartate aminotransferase (AST) levels in group B compared to the control. However, Histological studies showed that while cervical dislocation showed no adverse effects, chloroform, diethyl ether, and formalin inhalation showed various forms of cytoarchitectural distortions on the liver and kidney tissues and should therefore be discouraged or used with caution.

KEYWORDS: Cervical Dislocation; Chloroform; Dithyl ether; Formalin; Sacrifice; Inhalation

T2009. Co-administration of Zinc and Ascorbate Attenuates Germ Cell mRNA Androgen Receptor in Valorphin-induced Testicular-Toxicity in Wistar Rats

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Introduction: Literature has shown that opioid analgesics (Valorphin) induce reproductive toxicity, while some antioxidants like Zinc and Ascorbate are essential elements needed for the male reproductive system. **Aim of the study:** This work investigated the mechanism of reproductive toxicity induced by Valorphin and the putative role of co-administration of Valorphin with Zinc and Ascorbate. **Materials and Methods:** Twenty-five male Wistar rats, weighing between 180 and 200 g, were divided into five groups (A-E) (n = 5). Group A was designated as the control group (physiological saline), while rats in Group B received 3 mg/kg body weight (bw) of Valorphin only. Group C received co-administration of 3 mg/kg bw Valorphin and 7 mg/kg bw Zinc. Group D received co-administration of 3 mg/kg bw Valorphin and 150 mg/kg bw Ascorbate, while Group E received co-administration of 3 mg/kg bw Valorphin, 150 mg/kg bw Ascorbate, and 7 mg/kg bw Zinc. All administration was done orally for 56 days. **Results:** Testosterone, Glutathione peroxidase (GPx), and Superoxide dismutase (SOD) were significantly reduced ($p<0.01$) in Group B, while significant increases ($p<0.05$) were observed in Group E. Furthermore, significant down-regulation of Androgen Receptor (AR) gene expression ($p<0.05$) was observed in Group B, while up-regulation of this gene ($p<0.05$) was observed in Group E. No significant difference in Testosterone, GPx, SOD, and AR gene expression was observed in Groups C and D when compared with control and Group E treated rats. Testicular histoarchitecture showed few to no spermatozoa in the lumen of rats treated with Valorphin. **Conclusion:** This study has shown the reproductive toxicity induced by Valorphin via hormonal, oxidative stress, and germinal cells AR gene expression pathways, and that co-administration of Valorphin with Zinc and Ascorbate attenuates these effects via these pathways.
KEYWORDS: Valorphin, Opioid analgesic, Reproductive toxicity, Antioxidant

T2010. Morphological and Functional Changes in the Liver and Kidney of Wistar Rats Treated with Aqueous Extract of *Thaumatococcus danielli* (Benth.) Leaves

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Introduction: Usage of nylon to wrap food materials has been discouraged due to its established toxicity and carcinogenic effects. Emphasis is now on the use of *Thaumatococcus danielli* to replace nylon. *Thaumatococcus danielli* is a plant species from Africa, native to the rainforest in West Africa. It is known for its low calorie sweetner and flavour modifier, but toxic effects remain scarce. **Aim of the Study:** This study evaluated the morphological and functional changes in the Liver and Kidney of *Wistar* rats treated with aqueous extract of *Thaumatococcus daniell* leaves. **Materials and Methods:** An aqueous leaf extract was prepared using previous standard methods. The *Wistar* rats were divided into four groups (n=6). Group A (control) received 2mL of distilled water; Group B, C, and D received 25%, 50%, 75% LD_{50} of the extract, respectively, for four weeks. The LD_{50}, body and organ weights, Alanine and Aspartate transaminase, serum creatinine and urea levels, liver and kidney histology were analysed using standard protocol. **Results:** The 50% and 75% LD_{50} showed a significant increase in body weight, Alanine and Aspartate transaminase, serum creatinine, and urea levels ($P<0.05$) with a significant decrease in organ weight in a dose-dependent manner ($P<0.05$). Histologically, 50% and 75% LD_{50} of extract groups revealed distortion, congested central vein, and presence of collagen fibres that replaced the normal cells in liver histopathology, while kidney histopathology showed distorted kidney histology within the glomeruli, Bowman's capsule, dilated renal tubules with presence of necrotic cells. **Discussion:** The study validated that *thaumatococcus danielli* leaves were harmful at high doses to liver and kidneys morphology, hepatic and renal function test due to their significant increase, but remained insignificant at low doses. The study strengthens the opinion that the leaf can be used as a substitute for nylon in order to prevent the carcinogenic effects of nylon.

KEYWORDS: *thaumatococcus danielli*, nylon, food, wrap, kidney, liver, function tests, morphology.

T2011. Testicular Integrity in Adrenalectomized and Dexamethasone-Treated Animals

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Introduction: The male reproductive system is characterised by two (2) active biological processes: spermatogenesis and steroidogenesis that are altered by stressors and consequently promote infertility among male subjects. Dexamethasone (among others) is identified as an important stressor and hormonal disruptor, while adrenalectomy consequently depletes stressor hormones. This study investigated the impact of adrenalectomy and dexamethasone administration on testicular integrity. **Method and Methods:** Twenty (30) Wistar rats were used in this experiment, randomly selected into six (6) groups. Group A (Control) received distilled water only, Group B: UNI-ADX (Unilateral adrenalectomy), Group C: BI-ADX (Bilateral adrenalectomy), Group D: DEX (dexamethasone only), Group E: UNI-ADX+DEX (adrenalectomy + dexamethasone) group, and Group F: BI-ADX+DEX (adrenalectomy + dexamethasone) group, respectively. The administration of dexamethasone was carried out for period of seven (7) days, following adrenalectomy and the animals were euthanized twenty (24) hours after the last administration, testes were removed following abdominal incision and were fixed in Bouin's fluid for histological procedure using H/E, Masson Trichrome, Fuegen DNA, Ki-67- migration stains and the caudal epididymis used for the sperm analysis. **Result:** Significant reduction in spermatocytes concentration and increased percentage distribution of defective spermatocytes, characterized the sperm analysis among the animals treated with Dexamethasone, similarly, reduction in spermatogonia populations, abnormal widening of the interstitial spaces, loss of interstitial Leydig cells and basement membrane cells, expression of Ki-67, a tumor marker in the nuclei couple with degenerated spermatogonia population across the tubular diameter were observed. Testicular and spermatocytes integrities seem to be maintained in the control and adrenalectomised animals and were characterized by synchronous lineage of the spermatogonia population at all stages, basement membrane, reduced expression of tumor maker, and improved spermatocytes behavior. **Conclusion:** This study confirmed the reproductive toxicity of stressors, hormonal disruptors, and a point increase in stress hormones on the testicular integrity.

Keywords: Adrenalectomy, Dexamethasone, Testes, Stressor, and Wistar Rats

T2012. Sub-chronic Effects of Ethanolic Extract of *Moringa oleifera* Leaf on Kidney Histology of Adult Wistar Rats

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Introduction: *Moringa oleifera* is generally known for its multiple pharmacological effects; however, the sub-chronic effect of the ethanolic extract of *Moringa oleifera* leaf on the kidney histology of adult Wistar rat with emphasis on the glomerular and basement membrane received less attention. **Aim of Study:** This study aimed to investigate the effect of the ethanolic extract of *Moringa oleifera* leaves on the kidney histology of adult Wistar rats. **Materials and Methods:** Sixteen (n=16) male adult Wister rats were used; they were acclimatized for 7days and randomly distributed into four groups of 4 animals each. Group I animals (control) were given 0.1 ml/kg body weight of distilled water. Groups II, III, and IV were given 1250, 2500, and 3750 mg/kg body weight of *Moringa oleifera* extract orally for 14 days. The animals were then sacrificed, and the tissue collected was processed histologically with Hematoxylin and Eosin stain (H&E) and Periodic Acid-Schiff stain (PAS). The Photomicrographs observed under a light microscope. Histological section of group I (control) H&E stain shows normal histoarchitecture of the kidney. **Results:** Histological section of Group II shows mild tubulo-glomerular interstitium and appearance of chronic inflammation, Group III shows mild increase in cellularity with focal lobulation and degeneration of glomeruli with moderate tubulo-interstitial lymphocytic infiltrate, Group IV shows mild increase in glomerular cellularity, multifocal aggregate of lymphocytes in the tubulo-interstitium. The histological section of the Periodic Acid-Schiff (PAS) stain shows mild thickening of the basement membrane of the Glomeruli. **Conclusion:** In conclusion, this study shows that sub-chronic administration of ethanolic extract of *Moringa oleifera* leaf has sub-chronic effects on the histoarchitecture of the kidney, with dose-dependent effects.

T2013. Quadruple Arterial Blood Supply to the Liver: A Rare Variation

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Introduction: Vascular variations in the liver are significant to surgeons in liver transplantations, radiological procedures, laparoscopy, and penetrating abdominal injuries. These variations are important in the liver transplantation procedure; in addition to being an ideal opportunity for surgical anatomy study, their detailed identification is crucial to the success of the procedure. **Case Report:** During a routine dissection of the abdomen for medical students at the Department of Anatomy, Usmanu Danfodiyo University, Sokoto. A male adult cadaver with unknown identity and cause of death, we found four arterial branches to the liver: one each from the left gastric artery and common hepatic artery, a branch from the gastro-duodenal artery, and the hepatic artery. **Discussion:** Variations in blood supply to the liver have been described by many authors, though quadruple arterial supply from the branches of the coeliac artery, except the splenic artery, has not been reported before. Galen was the first anatomist who researched the arterial system from the celiac trunk and observe the arteries leading to the liver, stomach, and spleen. Later on, Andreas Vesalius gave anatomical descriptions of Galen's discoveries in the sixteenth century. **Conclusion:** Detailed knowledge of the variations of hepatic arterial anatomy is of utmost importance to surgeons who perform surgeries in this area, particularly in liver transplantation, since their identification and proper management are critical to the success of the procedure.

Keywords: Quadruple, arterial, blood supply, liver, variation

T2014. Ethanolic Leaf Extract of *Costus Afer* Attenuates Pituitary-Testicular Axis Lead-induced Impairments in Adult Male Wistar Rats

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Background: Lead is an environmental pollutant that exerts enormous toxic effects on multiple organs. Efforts are now being channeled to harness the potential of plant materials to counter the effects of lead toxicity, since chelating agents are not only expensive but also associated with side effects. **Aim:** The study evaluated the protective effect of *Costus afer* on lead-induced reproductive impairments in male Wistar rats. **Methods:** Twenty adult male Wistar rats were divided into four groups of five rats each. Group 1 served as the control, group 2 received 1000mg/kg of lead acetate, groups 4 and 5 received 400mg/kg and 800mg/kg of the extract for 14 days. Pituitary gland, testes, serum levels of testosterone, and antioxidant parameters were evaluated. **Results:** Results showed a significant increase in testosterone levels in groups treated with the extract when compared with the control. Significant increases were observed in serum and testicular antioxidant enzymes in groups treated with the extract ($p<0.05$). Mild restoration of the architecture of the pituitary gland was observed in the group treated with a high dose of the extract when compared with the toxic control. Alterations in the testes were insignificant in all the test groups when compared with the normal control. **Discussion:** Findings from this study suggest that the ethanolic leaf extracts of *Costus afer* exhibited a dose-dependent significant change in serum and testicular oxidative stress induced by lead. **Conclusion:** *Costus afer* may be potentially effective in ameliorating reproductive dysfunction in males caused by lead-induced oxidative stress.

Keywords: Lead, testes, pituitary gland

T2015. Effects of Normal Hexane Extract of *Enthandrophragma Angolese* Stem Bark on Semen Analysis in Benign Prostatic Hyperplasia Model of Adult Wistar Rat

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Introduction: The universality of benign prostatic hyperplasia has resulted in the search for herbal remedies to prevent prostatic cancer, in which consumption of the leaves is reported to be demulcent, diuretic, and tonic. The paucity of information on the effect of Enthandrophragma angolese on semen parameters (Sperm count, sperm motility, and sperm viability) in prostatic enlargement conditions, especially BPH, led to the conduct of this experiment. **Aim of study:** The goal of this research is to investigate the effects of N-hexane extract of Etandrophragma angolese stem bark on semen analysis in adult Wistar rats. **Materials and Methods**: 27 adult male Wistar rats weighing between 120g and 300g were divided into six groups (Normal control, Finasteride treated control, Hormonal treated control, low dose, medium dose, and high dose). They were induced subcutaneously with testosterone propionate diluted with olive oil for 8 weeks, except the normal control group, which was given olive oil only. Treatment followed for four weeks with normal hexane extract of enthandrophragma angolese stem bark, which was given to only four groups, while the other two groups were given Finasteride and Aqua, respectively. The animals were sacrificed, and semen was obtained and counted using Neubauer Counting under a light microscope. **Results**: A medium (1000mg/kg) dose of N-hexane extract of Entandrophragma angolese stem bark significantly ($p<.05$) has a positive effect on the semen analysis (sperm count, sperm motility) and testes in the BPH model of adult Wistar rat. **Discussion**: Oral treatment with Normal hexane extract of enthandrophragma angolese stem bark significantly improved Sperm count, sperm motility, and sperm viability of the rat model of benign prostatic Hyperplasia.

Keywords: *Enthandrophragma Angolese*, Semen analysis, and benign prostatic Hyperplasia

T2016. Adjuvant Potential of *Cyperus Esculentus* Extract on Antiretroviral Therapy-induced Testicular Toxicity

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Introduction: The long durational usage of antiretroviral drugs comes along with adverse effects that pose serious dangers in the clinical management of HIV/AIDS patients. **Aims of study**: The effects of *Cyperus esculentus* as an adjuvant to the deleterious effects of highly active antiretroviral therapy (HAART) were investigated on the cyto-architecture and functioning of the testis. **Methods**: Thirty Male Wistar rats weighing 150-169g were divided into six groups and treated as follows: Group A (distilled water), Group B (HAART), Group C (HAART+ *Cyperus esculentus* 500 mg/kg/bw), Group D(HAART+ *Cyperus esculentus* 1000mg/kg/bw), Group E(*Cyperus esculentus* 500mg/kg/bw), and Group F(*Cyperus esculentus* 1000mg/kg/bw). Testicular histology, seminal fluid, testosterone, luteinizing hormone, follicle-stimulating hormone, the antioxidant markers malondialdehyde (MDA), superoxide dismutase (SOD), and glutathione (GSH) were examined. **Results**: The use of HAART showed extensive degeneration in the seminiferous epithelium, decreased semen quality, widening of the lumen, and hypocellular interstitium. Adjuvant treatment with *Cyperus esculentus* at low dose (500mg/kg/bw) improved sperm motility with a partial restoration of the histopathological alterations. High doses of *Cyperus esculentus* (1000mg/kg/bw) showed greater improvement with respect to sperm counts and motility, increased hormonal FSH, testosterone, GSH, and SOD antioxidant levels, and a well-preserved testicular cyto-architecture. **Discussion**: While derangements in testicular and seminal fluid parameters occurred following HAART use, adjuvant treatment with *Cyperus esculentus* restored the distortion emanating thereof.

Keywords: Testis, Antiretroviral, Histopathological, Cyperus esculentus, Seminiferous epithelium

T2017. Effects of Decoction of *Cassia occidentalis* Linn, *Newboulda Laevis Linn,* and *Ageratun Conyzoid* on Gentamicin-induced Liver Damage in Adult Wistar Rats

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Aim of Study: This study investigated through histological and biochemical processes, the effect of decoction of *Cassia occidentalis Linn, Newboulda laevis Linn,* and *Ageratun conyzoid* on gentamicin-induced liver damage in adult Wistar rats. **Materials and Methods:** 24 adult Wistar rats were divided into 6 groups (n =4 in each group). Group 1 (control) received only feed and water ad libitum. Groups 2, 3, and 4 were induced with liver damage using gentamicin (100mg/kg body weight) for 10 days. Group 2 was not treated, but groups 3 and 4 were treated with 100mg/kg and 150mg/kg of Decoction of CO, NL, and AC extract, respectively. Groups 5 and 6 also received 100mg/kg and 150mg/kg of the Decoction of CO, NL, and AC extract, respectively. All treatments lasted for 14 days. **Result and Discussion:** The result showed a moderate damage of liver cells in group 2, and mild damage of liver cell in group 3, which is indicated by significant high value of AST concentration was recorded in group 3 (386.33 ± 2.12) and Group 2 (355.33 ± 3.51 UI) ($p < 0.05$)., significant high value of ALT concentration was recorded in Group 2 (183.33 ± 1.53) and Group 3 (113.5 ± 0.71 UI) ($p < 0.05$)., and significant high value of APT concentration was recorded in Group 2 (362.00± 2.65 UI) and Group 3 (384.50± 0.71) ($p < 0.05$). Finally, normal liver cells were recorded in groups 4, 5, 6, and 1, respectively, with significantly low levels of AST, ALP, and ALT, respectively, in each group when compared to each other ($p < 0.05$). **Conclusion:** In conclusion, decoction of *Cassia Occidentalis Linn, Ageratum Conyzoides Linn, and Newbouldia Laevis* decoction has anti-inflammatory properties against gentamicin-induced liver damage in albino rats at an optimum dose of 150mg/kg, indicated by normal liver cells in group 4. Therefore, the above leaf extract is potentially a source of useful drug items for hepatotoxicity in humans.

Keywords: Cassia Occidentalis Linn, Newbouldia laevis Linn, Ageratum conyzoid, Gentamicin, Wistar rat

T2018. Protective Effects of Virgin Coconut Oil on Acetaminophen-induced Hepatotoxicity in Wistar Rats

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Introduction: Acetaminophen is an extensively used analgesic and antipyretic drug that is often used without a prescription. An overdose of which can cause liver damage. **Aim:** This study investigated the hepatotoxicity of acetaminophen and the protective effects of virgin coconut oil through histological and biochemical procedures using adult Wistar rats. **Materials and Methods:** The rats of both sexes (N=20) with an average weight of 200g were randomly assigned into a control group (n_1=5) and the test groups (n_2=5, n_3=5, n_4=5). The rats in tested group 1 received 650mg/kg body weight of acetaminophen daily, rats in tested group 2 received 650mg/kg body weight of acetaminophen daily and 5ml/kg body weight of virgin coconut oil daily, rats in tested group 3 received 650mg/kg body weight of acetaminophen daily and 10ml/kg body weight of virgin coconut oil daily and given for fifteen days through orogastric canula administration while the control rats received sterile water through the same route for the same period. **Result and Discussion:** The enzyme levels of Aspartate Aminotransferase, Alkaline Aminotransferase, and Alanine Phosphatase in test group 1 increased and were statistically significant ($p<0.05$) when compared to the control group. The enzyme levels of AST, ALT, and ALP in test group 2 decreased and were statistically insignificant ($P>0.05$) when compared to test group 1. The enzyme levels of AST, ALT, and ALP in test group 3 decreased and were statistically insignificant ($P>0.05$) when compared to test group 1. The histological results showed moderate damage of liver cells in test group 1, mild damage of liver cells in test group 2, and no damage of liver cells in test group 3. **Conclusion:** Virgin coconut oil has a protective effect against hepatic injury induced by acetaminophen. It is recommended that further studies aimed at corroborating these observations be carried out.
Keywords: Acetaminophen, Virgin Coconut Oil, Hepatotoxicity, Liver, Wistar Rats.

T2019. Maternal Mid Upper Arm and Waist Circumferences as Risk Factors for Pre-eclampsia Among Pregnant Women Attending Antenatal Care in Kano South

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Introduction: It is a fact that pre-eclampsia is among the direct causes of maternal morbidity and mortality. However, clear and affordable protocols such as anthropometric indices of mid-upper arm circumference (MUAC) and maternal waist circumference (WC) may help in early and handy detection of pre-eclampsia, but are lacking in Kano South antenatal care (ANC) centers. **Aim of Study:** This research was aimed at studying maternal WC and MUAC as it relates to risk factors of maternal blood pressure and proteinuria for Pre-eclampsia. It was conducted among pregnant women attending the ANC unit in Rano General Hospital, located in the Rano local area of Kano South Senatorial Zone, Kano state, Nigeria. 73 pregnant women between 30 weeks of gestation and term were conveniently sampled. Data of WC, MUAC, Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP), and Protein were measured, and expressed as mean plus or minus (±) standard deviation (SD). Pearson's correlation analysis was used to correlate the anthropometric variables of WC and MUAC with the risk factors of preeclampsia. **Results and Discussion**: Part of the results showed that five of the subjects were pre-eclamptics and 68 were normotensives. Mean (± SD) of WC in both normotensive and pre-eclamptics were 86.55 ± 6.99 cm and 85.00 ± 6.75 cm, respectively. While MUAC in both normotensive and pre-eclamptics were 23.99 ± 2.52 cm, 23.5 ±2.85 cm, respectively. The correlations for WC and MUAC were statistically significant with SBP in preeclamptic subjects only. These indicate that WC and MUAC anthropometric tools may not be reliable for predicting preeclampsia in the Kano South women population. However, a large sample size may prove otherwise.

T2020. Anatomy of Pre-eclampsia: Maternal and Fetal Cardiovascular Diseases Predilection; a Research Window

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Introduction: Cardiovascular diseases (CVD), including pre-eclampsia (PE), remain the major cause of death and morbidity in women. An understanding of the anatomical remodeling in pregnancy and preeclamptic modifications is important in unraveling the numerous associated anomalies and transgenerational manifestations. **Aim**: This presentation elucidates the current knowledge, state of research, and scientific information available on uterine remodeling in normotensive and preeclamptic pregnancies, and the post-event implications and complications of PE regarding maternal and fetal cardiovascular health. Does PE expose, predispose, or aggravate a predilection to maternal and fetal CVD later in life? **Recent Findings**: Women with a history of PE are reported to have stiffer arteries and are more likely to develop cardiovascular problems with time, especially aortic stenosis and mitral regurgitation, which were not hitherto linked with hypertensive pregnancy. Fetal cells persist in the mother long after pregnancy, now clearly established in the lungs of mice postpartum, and this is suggested to portend an overexpression of STOX1, which may potentiate later life CVD. Moreover, the conventional theories of in utero stress and developmental reprogramming may not adequately explain the risk of later life CVD predilection in offspring born to mothers with preeclampsia, as recent data have shown that siblings of offspring born from pre-eclamptic pregnancies are also at higher risk of hypertension later in life, irrespective of whether subsequent pregnancies were pre-eclamptic or normotensive. **Conclusion/Research Gap**: The mechanisms involved in adverse cardiovascular outcomes in offspring of pre-eclamptic pregnancies are most likely an intricate interaction of fetal programming, environmental, and genetic factors. In light of available evidence, the question of whether PE is just a pointer or a predisposing factor to maternal development of CVDs in later life begs for answers to facilitate definitive clinical solutions and preventive approaches.

Keywords: Pre-eclampsia, Pregnancy, Cardiovascular, Predilection, Maternal, Fetal

F1001. Cerebellar Histomorphology in Lead-acetate Induced Toxicity and the Neuroprotective Effect of Aqueous Leaf Extract of *Carica Papaya l.* in Adult Wistar Rats (*Rattus Norvegicus*)

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Aim of the study: This study was aimed at assessing the possible neuroprotective effect of sub-acute administration of aqueous extract of *Carica papaya* L. leaves in lead acetate-induced toxicity on the cerebellum. **Materials and Methods:** Twenty healthy adult Wistar rats of both sexes (150-250g) were assigned to 4 groups (n=5). Group T (Control) received 2mLs/kg distilled water as a placebo, while T1, T2, and T3 received 200 mg/kg of lead acetate only, 200 mg/kg of lead acetate + 200 mg/kg of aqueous extract of *Carica papaya* concomitantly and200mg/kg of aqueous extract of *Carica papaya* only, respectively. Lead acetate and extract treatment was by oral gavage for 14 days. Rats were sacrificed on the 15th day following the last administration. Brain tissues were harvested and fixed in 10% Neutral Buffered Formalin, and coronal brain slices were obtained at the level of the optic chiasm, processed, and stained in Cresyl violet. Data obtained from the study were analyzed by one-way ANOVA and subjected to Tukey's *posthoc* test for multiple comparisons. $p < (0.05)$ was considered statistically significant. **Results:** The result obtained showed a statistically significant decrease ($p<0.05$) in body weight change of the lead acetate only group (T1) relative to the control (T). Histomorphological assessment with the Cresyl fast Violet stain showed evidence of neuronal degeneration in the cerebellum of (T1), while (T2), which received lead acetate and aqueous extract of *Carica papaya* leaves concomitantly, showed slight alterations in neuronal morphology, showing some neuroprotective efficacy of *Carica papaya*. T and T3 demonstrated an intact histoarchitectural pattern of the normal cerebellum. **Conclusion:** The study concluded that lead acetate resulted in cerebellar neuronal degeneration, which will, by extension, affect cerebellar functions, while aqueous extract of *Carica papaya* leaves offered some neuroprotection.

Keywords: Cerebellum; *Carica papaya*; Lead acetate; Neuroprotection; Neuronal degeneration.

F1002. *Nigella Sativa* Oil Mitigated Learning and Memory Impairments in a Drosophila Model of Alcohol Dehydrogenase Deficiency

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Introduction: Accumulation of acetaldehyde causes memory impairment and learning difficulties upon alcohol dehydrogenase deficiency. *Nigella sativa* oil (NSO) is a therapeutic plant, and it has been used in the treatment of different diseases. Learning and memory in Drosophila are controlled by the mushroom body and the central complex. *Drosophila melanogaster* has a complex nervous system, conserved neurological functions, and human disease-related gene homologues, which make it an ideal model for the study of neurodegenerative and alcohol-related diseases. **Aim of study**: This research sought to investigate the therapeutic potential of *Nigella sativa* on the learning and memory functions of adult and larval *Drosophila* model of alcohol dehydrogenase deficiency through aversive phototaxis suppression assay (APS) and Larvae phototaxis assays, respectively, following the exposure to *Nigella sativa* oil. **Materials and methods**: Twenty (20) virgin male and twenty (20) virgin female of Oregon R and ADH fly strains were exposed to either normal media (Control) or 2% NSO (experimental) for one week. Each fly group consisted of 10 adult vials and 10 larvae. Adult flies were kept in the dark for 24hours before the neurobehavioral assay was conducted, while larvae for the experimental group were pre-exposed to 2% NSO for one hour. **Results**: Higher learning capability and memory retention were recorded in flies exposed to *Nigella sativa* oil. Larvae exposed to *Nigella sativa* also showed a higher response index. **Discussion**: *Nigella sativa* improved learning capability and memory retention in adult flies and increased response index in larvae exposed to it. The study shows the therapeutic properties of *Nigella sativa* on learning and memory in *drosophila* model of alcohol dehydrogenase deficiency.

Keywords: *Nigella sativa*, Acetaldehyde, Alcohol dehydrogenase deficiency, learning and memory, Drosophila

F1003. Neuroprotective Effects of Kolaviron and *Moringa Oleifera* in Cuprizone-induced Demyelination of the Hippocampus of Wistar Rat

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Introduction: Morbidity resulting from demyelinating diseases causes long-lasting disability that hinders sufferers from leading normal lives. **Aim of Study:** This study determined the neuroprotective effects of Kolaviron and *Moringa oleifera* in cuprizone-induced demyelination. **Materials and Methods:** Animals were divided into control and treated groups; the control group received a normal diet, while the treated groups received a cuprizone diet with or without Kolaviron and *Moringa oleifera* at specified doses and durations. Behavioral analysis was conducted euthanizing the rats, followed by histochemical and immunohistochemical assessment of the hippocampus. **Results:** Cuprizone-induced hippocampal damage was associated with memory deficits, oxidative status derangement, neuro-inflammation, and varying degrees of histomorphological changes such as the presence of neuropil fragmentation, dispersion, and pyknosis of pyramidal neurons in the *Cornus ammonis* region of the hippocampus. These changes were, to a reasonable extent, ameliorated by both Kolaviron and *Moringa oleifera* administration. **Conclusion:** *Moringa oleifera* and Kolaviron were able to mitigate the detrimental effects of cuprizone on the structural and functional integrity of neuronal and non-neuronal cells.

Keywords: Cuprizone, Demyelination, Hippocampus, *Moringa oleifera*, Kolaviron

F1004. Consumption of *Aspilia africana* Adversely Affects the Spinal Cord of Developing Wistar Rats Fetuses

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Introduction: Morbidity resulting from demyelinating diseases causes long-lasting disability that hinders sufferers from leading normal lives. **Aim of Study:** This study determined the neuroprotective effects of Kolaviron and *Moringa oleifera* in cuprizone-induced demyelination. **Materials and Methods:** Animals were divided into control and treated groups; the control group received a normal diet, while the treated groups received a cuprizone diet with or without Kolaviron and *Moringa oleifera* at specified doses and durations. Behavioral analysis was conducted euthanizing the rats, followed by histochemical and immunohistochemical assessment of the hippocampus. **Results:** Cuprizone-induced hippocampal damage was associated with memory deficits, oxidative status derangement, neuro-inflammation, and varying degrees of histomorphological changes such as the presence of neuropil fragmentation, dispersion, and pyknosis of pyramidal neurons in the *Cornus ammonis* region of the hippocampus. These changes were, to a reasonable extent, ameliorated by both Kolaviron and *Moringa oleifera* administration. **Conclusion:** *Moringa oleifera* and Kolaviron were able to mitigate the detrimental effects of cuprizone on the structural and functional integrity of neuronal and non-neuronal cells.

Keywords: Cuprizone, Demyelination, Hippocampus, *Moringa oleifera*, Kolaviron

F1005. Combined Therapeutic Effects of *Khaya Senegalenesis* Bark and *Tinospora Cardiofolia* Leaf Extracts on Amitriptyline-induced Stroke on the Prefrontal Cortex in Rat

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Introduction: Single therapeutic approaches used in the treatment of stroke and poor recovery of victims have remained a quest in search of a combined approach to manage stroke. This study aimed to investigate the neuroprotective and neurorepairing role of *Khaya senegalensis* bark and *Tinospora cardiofolia* leaf extracts on amitriptyline induced stroke on the prefrontal cortex in adult Wistar rat. **Materials and methods:** Fifty healthy adult male rats weighing 184-254g were used for this experiment, and they were grouped into five groups (n = 10). The experiment was in 2 phases. Phase I: a single dose of 1.4 mg/kg of amitriptyline was given to rats in (group B - E) for 3 days, to induced stroke, group B, served as negative control (stroke rats), were not treated while phase II, treatment groups (group C, D & E) were administered with *Khaya senegalensis* bark and *Tinospora cardiofolia* leave orally, at doses of 200, 300 and 400 mg/kg body weight respectively, for two weeks. Group A (positive control) was administered distilled water. After the administration, the rats were sacrificed using chloroform inhalation, and the brains were collected and fixed in 10% neutral buffered formalin. **Results:** Neurohistology results showed normal histoarchitecture in group A, while morphological and neuronal degeneration in the prefrontal cortex were observed in group B, with characterized astrocytosis, lymphocytes Infiltrates, irregular shape pyramidal cells, perivascular Edema, perivascular cuffing, and shrunken Granule cells. On treatment of group C (low dose) rats, morphological and neuronal recuperative changes were observed, while marked improvement (neurovascular unit and cortical cells) was noted in group D (medium dose). High dose (group E) showed vacuolated cortical cells with minimal improvement. **Conclusion**: Combined *Khaya senegalensis* bark and *Tinospora cardiofolia* leaves at a dose of 300 mg/kg have shown a protective and neurorepairing role on neurodegenerative changes in the prefrontal cortex, by regenerating pyramidal cell/granule cells and neurovascular unit.

Keywords: Amitriptyline, Prefrontal Cortex, *Khaya senegalenesis, Tinospora cardiofolia,* Neurovascular unit.

F1006. Neurorestorative Effects of K*haya Senegalensis* Bark and *Tinospora Cardiofolia* Leaf Extract on Amitriptyline-induced Parieto-Temporal Cortex Damage in Rats

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Introduction: Restorative approaches to treat stokes is still the major challenges confronting stroke researchers in their attempt to manage and treat stroke. This study is therefore designed to investigate the restorative role of *Khaya Senegalensis* bark and *Tinospoera Cardiofolia* leaf extracts on amitriptyline induced changes in the parieto-temporal cortex. **Materials and methods:** Fifty healthy adult male rats weighing 184-254g were used for this experiment, and they were grouped into five groups (each n = 10). The experiment was in 2 phases. Phase I: a single dose of 1.4 mg/kg of amitriptyline hydrochloride was given to rats in (group B - E) for 3 days, to induced stroke, group B, served as negative control (stroke rats), were not treated while phase II, treatment groups (group C, D & E) were administered with *Khaya senegalensis* bark and *Tinospora cardiofolia* leave orally, at doses of 200 mg/kg, 300 mg/kg and 400 mg/kg body weight respectively, for two weeks. Group A (positive control) was administered distilled water. After the administration, the rats were sacrificed by chloroform inhalation, and the brains were collected and fixed in 10% neutral buffered formalin. **Results:** showed normal histoarchitecture of the cortical cells in group A (positive control) while Group B (Negative control; stroke group), left untreated, showed astrocytosis, lymphocytes infiltrates and vacuolated neutrophils, irregular shape pyramidal cell, surrounded by pericellular halos, perivascular edema, perivascular cuffing and shrunken granule cells, On treatment groups C, D and E, the results showed graded morphological restorative processes on the cortical cells, from minimal, moderate to normal orientation respectively. **Conclusion:** At a dose of 400 mg/kg of *Khaya senegalensis* bark and *Tinospora cardiofolia* leaves, there will result in complete neuroplasticity and neuroregenerative processes, which may serve as neurorestorative therapies for stroke.

Keywords: Amitriptyline, parieto-temporal cortex, *Khaya senegalenesis, Tinospora cardiofolia,* neurorestorative.

F1007. Cortical Damage in the Frontal Cortex of Adult Wistar Rats Following Cadmium Chloride Administration

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Introduction: Cadmium has been reported to be a devastating and widespread toxic environmental and industrial pollutant. The primary site of action of cadmium is the central nervous system. **Aim of the study**: This study investigated some effects of cadmium chloride on the frontal cortex of adult Wistar rats. **Materials and methods:** Thirty-six (36) adult Wistar rats of both sexes, weighing between 80g and 150g, were randomly separated into four groups of nine animals each. Group A rats were regarded as the control, while groups B, C, and D were orally treated with 7.8mg/kg,15.3mg/kg, and 20.7mg/kg body weight of cadmium chloride for 28days respectively. The Wistar rats were sacrificed by cervical dislocation on the 28th day of the treatment. The brain was removed and weighed; part of the brain was homogenized for biochemical analysis for MDA.SDH and NO, while the remaining part was then fixed in 10% formol calcium, and processed for histological study using H and E staining technique. **Results:** The results showed that the mean body weights of the Wistar rats reduced significantly ($P<0.05$) in the treated group compared with controls. The brain weights in cadmium-treated groups decreased insignificantly ($P>0.05$) when compared with controls. Biochemical analysis shows a significant increase ($p<0.05$) in the level of MDA, NO, and SDH in cadmium treated group compared with the control. Histological study of the frontal cortex revealed distorted and degenerative changes in the cortical layers of the cadmium-treated groups, characterized by peripheral and central degenerative changes, scattered pyknotic pyramidal and granule neurons that appear with fragmented cytoplasm and condensed nuclei. Degenerating neurons surrounded by perineural spaces were found in the cortical layer of the treated groups. **Conclusion:** This study concluded that cadmium chloride exposures in Wistar rats induced neurodegenerative changes in the frontal cortex of adult Wistar rats, which may adversely affect some cortical motor functions in the Wistar rats investigated.

Keywords: Cadmium, neurodegenerative changes, frontal cortex

F1008. Dose-based Efficacy of Aqueous Turmeric Extract on Aluminum-induced Toxicity on the Hippocampus of Female Wistar Rats

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Introduction: Neurodegenerative diseases resulting from environmental toxicity are becoming a threat to humanity. Researchers have therefore intensified efforts towards a preventive and curative measure. This study assessed dose- based effects of aqueous turmeric extract on aluminum chloride ($AlCl_3$) induced toxicity on the hippocampus of female Wistar rats.
Methodology: Thirty (30) female Wistar rats were divided randomly into six groups, each containing five rats. Group 1(Control), Group 2 and Group 3 were administered 250mg/Kg b.w and 500mg/Kg b.w of aqueous turmeric, respectively. Group 4 was administered 100mg/kg b.w $AlCl_3$, while Groups 5 and 6 were treated with 100mg/kg b.w of $AlCl_3$ and subsequently 250mg/kg b.w and 500mg/Kg b.w of turmeric, respectively. Administration was done orally with an oral cannula for 17 days. Behavioral assessments were the open field test and the Morris water maze for explorative and cognitive abilities. All rats were then sacrificed, and one brain tissue per group was excised for histological and immunoohistochemical assessments, while the hippocampus of the remaining 5 were excised and homogenized for biochemical assays using ELISA kits. **Results:** There were variations in the pattern of the behavioral assessments. There were improvements in AChE and MDA levels of the control and treatment groups when compared to the $AlCl_3$ group. However, there was no significant statistical difference between the efficacy of the lower dose and the higher dose. Histological and immunohistochemical assessments showed improved neuronal morphology when compared to the $AlCl_3$ group. **Conclusion:** Turmeric extract at low dose can be considered as a treatment regimen against Aluminum chloride- induced neurotoxicity.

Keywords: neurodegeneration, hippocampus, Aluminum Chloride, Turmeric, oxidative stress.

F1009. Kolaviron Attenuated Hydrogen Peroxide-Induced Hippocampal Oxidative Stress in Swiss albino Mice.

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Introduction: Hydrogen peroxide (H_2O_2) is one of the most important reactive oxygen species (ROS) generated that could cause oxidative stress. It is a common neurotoxic agent that induces neurotoxicity in vitro and in vivo with features including mitochondrial dysfunction, oxidative stress, cytotoxicity, apoptosis, and neuronal cell death. Kolaviron (KV) is an extract of bitter *kola* seeds (*Garcinia kola)* and has been reported to have antioxidative and anti-inflammatory properties. This study aims to investigate the neuroprotective effect of Kolaviron on H_2O_2-induced hippocampal neurotoxicity. **Materials and Methods:** Thirty-five (35) male mice weighing 23–25g were divided into five groups (n=7). Group A (vehicle): 0.5ml corn-oil, group B: KV 200mg/kg only, group C: 1% H_2O_2 in drinking water only, group D: KV 200mg/kg and 1% H_2O_2 in drinking water, while Group E: KV 400mg/kg with 1% H_2O_2 in drinking water for 14 days. Levels of malonaldehyde (MDA), superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx) and glutathione reductase (GSH) were evaluated. Histoarchitecture was analyzed by H&E and Cresyl violet histological staining and immunohistochemistry to determine Nrf2 expression. The data were analyzed statistically by one-way ANOVA using GraphPad Prism 5.0 with statistical significance set at $P<0.05$. **Results:** Decrease in weight and brain weight was recorded in H_2O_2-treated group. High MDA levels, low CAT, GPx, and SOD levels, as well as a reduced GSH activity were also observed in the hippocampus of the H_2O_2-treated mice than the control groups, whereas mice receiving KV with H_2O_2 decrease MDA levels, increase CAT, GPx, SOD were observed. **Conclusion:** Kolaviron attenuated hippocampal oxidative stress caused by H_2O_2 dose dependently acting as Nrf2 activator and preventing H_2O_2-induced oxidative stress.

Keywords: Kolaviron, Hydrogen peroxide, Hippocampus, Neurotoxicity, Mice

F1010. Neuroprotective Effect of Gongronema Latifolium Leaf Aqueous Extract on Distilled Gin Brain Lesions in Wistar Rats

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Introduction: There is an increase in the availability and marketing of ethyl alcohol-containing products or beverages, correlated with heavy drinking and associated health/social problems.
Aim: The study was designed to develop an alternative method to treat ethanol-induced damage, investigate the effect of administering an aqueous extract of bush buck- *Gongronema latifolium* on the brain microanatomy following regular consumption of distilled gin. **Materials and Methods:** Twenty male albino rats weighing between 120 g and 200 g were divided into four groups (n=5) as follows: Group A received distilled water as the control; Group B given 400 mg/kg of *G. latifolium* extract; Group C treated with 4 ml/kg of blended dry gin; and Group D co-administered 4 ml/kg blended gin plus 400 mg/kg *G. latifolium* leaf extract in that order. Oral treatments were given once daily with a syringe for fourteen days, while animal subjects accessed chow and water *ad libitum*; euthanized via cervical dislocation on day 15. The brain was dissected to obtain cerebellar, hippocampal, and cerebral cortical tissue specimens immediately fixed in 10% formal saline, and paraffin method with H&E stains used for histological studies.
Results: Microscopic evaluation of samples from group B showed normal morphology with distinct cellular outlines of the Purkinje, pyramidal, and cortical-multimodal neurons. Whereas micrographs of group C revealed severe degeneration with pyknotic appearance, intravascular inflammation, and vacuolation of neuronal tissue, among other pathological changes observed. However, there was a marked reduction of lesions in group D samples when compared with group C, due to the neuroprotective effect of the extract.
Conclusion: This research outcome implies that *G. latifolium* has significant ameliorative potential that could be harnessed by pharmaceutical agencies for the development of alternative therapy against neurodegenerative disorders.
Keywords: Gongronema latifolium, neuroprotection, ethanol, brain, pyknosis,

F1011. *Adansonia digitata* Improves Motor Function by Modulating Acetylcholinesterase Activity and Dopamine Concentration in the Brain of Wistar Rats with Lead-induced Toxicity

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Aim: The current study seeks to explore the protective effects of *Adansonia digitata* against lead-induced motor function impairment, decreased dopamine concentration, and reduced acetylcholinesterase activity in the brain of Wistar rats. **Methodology:** Thirty male adult rats weighing 140g-180g were divided randomly into six groups (I-IV) of five (5) rats in each group. Group I were administered with distilled water (1 m/kg) as control; Group II were administered 250 mg/kg of *Adansonia digitata*; group III were administered 30 mg/kg of lead; Group IV were administered 250 mg/kg of Adansonia digitata plus 30 mg/kg of lead; Group V were administered 500 mg/kg of Adansonia digitata plus 30 mg/kg of lead; Group VI were administered 30 mg/kg of lead plus 10 mg/kg of succimer. All administrations were carried out through oral gavage for a period of 28 days. **Results:** Lead administration caused motor function impairment by decreasing the concentration of dopamine and acetylcholinesterase activity in brain of rats. *Adansonia digitata* treatment significantly ameliorates motor function by modulating dopamine concentration and acetylcholinesterase activity in the brain of Wistar rats. **Conclusion:** The result showed that *Adansonia digitata* attenuates lead-induced motor impairment in Wistar rats by improving dopamine concentration and acetylcholinesterase activity in rats exposed to lead.

Keywords: Lead, *Adansonia digitata*, brain, motor function, dopamine.

F1012. Thymoquinone Modulates Cyclophosphamide-induced Biochemical and Histomorphological Changes in the Hypothalamo-pituitary-testicular Axis in Adolescent Wistar Rats

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Introduction: Cyclophosphamide is one of the first cytotoxic anticancer agents approved by the FDA, and it is still being used today. It is also approved for minimal change disease of the kidney in children despite its well-known wide range of reproductive and other toxic effects. This drug targets cancer cells, but it also has effects on normal cells of the body. **Aim**: This study investigated the possible protective potential of thymoquinone on Cyclophosphamide-induced gonadotoxicity. **Materials and Methods**: In this study, thirty male adolescent Wistar rats weighing between 100 g and 110 g were used. They were divided into six groups (n=5) treated as follows: NS (control group) had normal saline, CYP had cyclophosphamide (20mg/kg) for 7 days, TQ5 had 5mg/kg of thymoquinone, TQ10 had 10 mg/kg of thymoquinone, CTQ5 had cyclophosphamide (20mg/kg) and thymoquinone (5mg/kg), and CTQ10 had cyclophosphamide (20mg/kg) and thymoquinone (10mg/kg) for 21days. Serum reproductive hormones were assayed, semen analysis was performed, and the expression of testicular PCNA was determined using immunohistochemical studies. Results are presented as mean ± SEM, and all statistical comparisons were performed by means of one-way analysis of variance (ANOVA). **Results**: Results revealed that cyclophosphamide impacted negatively on the biochemical and histoarchitectural status of the testes. The cyclophosphamide-treated groups had significantly lower sperm count, sperm motility, and reduced thickness of germinal epithelium, indicating a lower population of proliferative sperm cells. Thymoquinone was able to partially protect from these changes. This has been attributed to its anti-inflammatory properties.

Keywords: Cyclophosphamide, Thymoquinone, Gonadotoxicity, Germinal Epithelium, Proliferating Cell Nuclear Antigen

F1013. Histomorphological Effect of *Khaya Senegalensis* Bark and *Tinospora Cardiofolia* Leaf Extracts on Amitriptyline-induced Changes in the Hippocampus of Rats

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Introduction: Hippocampus is known to be the brain center for emotion and memory, attempt to damage its segments, ventral and dorsal hippocampi, will result in aberrant expression of anxiety and memory deficit, a step to ischemic stroke. This study aimed to investigate neurorepairs effect of *Khaya Senegalensis (KS)* bark and *Tinospora Cardiofolia (TC)* leaf extracts on amitriptyline (AMT) induced changes in the hippocampus (CA3) of rats. **Aim of Study:** Fifty healthy adult male rats weighing 184-254g were used for this experiment, and they were grouped into five groups (n = 10). The experiment was in 2 phases. Phase I: a single dose of 1.4 mg/kg of AMT was given to rats in (group B - E) for 3 days, to induced stroke, group B, served as negative control (stroke rats), were not treated while phase II, treatment groups (group C, D & E) were administered with *Khaya senegalensis* bark and *Tinospora cardiofolia* leave orally, at doses of 200 mg/kg, 300 mg/kg and 400 mg/kg body weight respectively, for two weeks. Group A (positive control) was administered distilled water. After the administration, the rats were sacrificed using chloroform inhalation, and the brains were collected and fixed in 10% neutral buffered formalin. **Results and Discussion:** Results showed normal histoarchitecture of CA3 in group A (positive control). glial cells and neurons, degenerated pyramidal cells, neuron and fragmented neuronal processes are observed in AMT-treated rats (group B). Group C, low dose; 200mg/kg showed mild morphological changes, while group D (medium dose: 300 mg/kg), revealed a consistent hippocampal cellular tissue loss with fewer degenerated pyramidal cells in the molecular layer. In group E (high dose: 400 mg/kg), there was moderate to normal orientation of cells of the CA3 area of the hippocampus. **Conclusion:** In conclusion, at a dose of 400 mg/kg of KS & TC, there will be neurogenesis and activation of neuronal synapses.

Keywords: Amitriptyline, Hippocampus, *Khaya senegalenesis, Tinospora cardiofolia,* Neurorepairs

F1014. Studies on Hippocampal Histoarchitecture and Neurochemistry in Psychologically Stressed Rats Given Gut Microbiome Supplementation

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Introduction: Life-threatening psychological stress (PS) disrupts the gut microbiome and accelerates decline in cognitive and memory functions and may predispose to certain neurodegenerative diseases. It is not known if the administration of probiotics (probio) can mitigate the detrimental effect of psychological stress on hippocampal histoarchitecture and neurochemistry. **Aim:** This study was, therefore, designed to test the hypothesis that the administration of probiotics has beneficial effects on the neurohistology and neurochemistry of the hippocampus following exposure to psychological stress. **Materials and Methods**: Thirty-five adult male Wistar rats with an average weight of 180g were assigned into seven groups (n=5) comprising the control, acute PS, acute probio, acute PS+probio, chronic PS, chronic probio, and chronic PS+probio. Each animal in the probio groups was fed 10×10^6 colony-forming units of *Lactobacillus acidophilus* every other day, while the PS groups were exposed to predator stress for one hour between 7-10 am daily. The treatments lasted for 21 days. At the end of the experiment, all animals were sacrificed by cervical dislocation, and blood samples were collected via cardiac puncture into standard bottles, after which the hippocampus was carefully harvested for histology and assay of dopamine, serotonin, malondialdehyde (MDA), catalase (CAT), superoxide dismutase (SOD), and reduced glutathione (GHS). **Results**: Data analyses reveal that both acute and chronic PS significantly ($p< 0.05$) depress hippocampal serotonin and dopamine levels, cause increased lipid peroxidation, and impair antioxidant parameters. The probiotics groups exhibited statistically significantly better results on all parameters assessed and compared. There were no obvious histoarchitectural differences seen between any two groups. **Discussion**: Overall, data analyses suggest that the gut microbiome might play a significant role in hippocampal function because supplementing it mitigates stress-induced perturbations of hippocampal neurochemistry and redox status.

Keywords: Hippocampus, gut microbiome, redux status, neurochemistry

F1015. The Effects of Prenatal Administration of Lead and Aqueous Extract of *Tridax Procumbens* on the Frontal Cortex of the Mother and Fetus of Wistar Rats

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Introduction: Many countries in the world depend on herbal medicine for primary health care. *Tridax procumbens* has a protective effect against teratogens, especially lead. **Aim:** The objective of this research is to test the efficacy of *Tridax* on pregnant rats before and after lead administration during the gestation period. **Materials & Methods:** One hundred rats (180 to 240 g) comprising 15 males and 85 females were used. The rats were bought, kept in cages, and acclimatized for two weeks. Vaginal smear was done for the female rats to check their estrous cycle in preparation for mating. The pregnant rats were grouped into five (five rats per group): four treated and a control group, which were fed with rat pellets and distilled water. The first treated group of rats was given 1 ml of the crude extract of *Tridax.* The second group was given lead only. The third group was given 1 ml of crude extract of *Tridax,* and after 30 minutes, lead was given. The fourth group of rats was given lead, and after 30 minutes, *Tridax* was given. The administration was done on days 4 and 5; 9 and 10; 15 and 16 of their gestation periods of 21 days. The mother rat was sacrificed on day 20 of pregnancy. The maternal and foetal brains were excised and weighed. The frontal cortices of both brains were separated and fixed in paraformaldehyde for histological preparations. **Results:** The effect of lead on the frontal cortex displayed degeneration in the neurons present in the granular layer. *Tridax,* on the other hand, helped to combat these effects. In rats that were given lead before tridax all week, it was seen that there was a massive destruction of the neuronal bodies, and tridax was able to combat this effect.

Keywords: Lead, *Tridax procumbens*, Frontal Cortex, Wistar Rats, Gestation

F1016. Liketremor, Like Psychosis, Neuroprotection and Motor Coordination Enhanced by *Nigella sativa* following Phenol Administration in Balb/C Mice

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Background: Psychiatric symptoms and movement abnormalities are often comorbid and exacerbate each other, with treatment of one possibly evoking the other, as seen with neuroleptics, resulting in tardive dyskinesia when used in treating psychosis. NS is a medicinal herb with therapeutic potential in various neurological conditions. **Aims of study**: Using albino mice, this study evaluated the therapeutic roles of *Nigella sativa* oil (NSO) through neurobehavioral, neurochemical, and histological assays on cerebellar phenotypes of phenol-induced essential tremor (ET). **Materials and Methods:** Seventy-five (75) adult male BALB/c mice weighing 25 ± 5g were equally divided into 5 groups. They were administered either feed and water only (CONTROL); 100 mg/kg body weight (bw) phenol (PHE); 100 mg/kg body weight (bw) phenol plus 1 ml/kg bw Nigella sativa oil (PNSC); 1ml/kgbw Nigella sativa oil followed by 100 mg/kg/bw phenol (NSP); or 1 ml/kg bw Nigella sativa oil only (NS) for a period of 16 days. Tremor response, body weight, temperature, motor coordination (using the parallel bars and static rods tests), relative brain weights, cerebellar glutamate, glutathione peroxidase (GPX), and histoarchitecture were assayed 24hours following the last administration. **Results:** Histoarchitectural defects, unchanged weight, increased GPX and glutamate levels, as well as poor motor coordination, were exhibited by the PHE group, while the PNSC, NSP, and NS mice decreased in weight. Both the CTRL and NS animals demonstrated good motor coordination. In the absence of NS, the PHE-only mice exhibited significantly longer turning and transit time on the motor coordinative testing apparatus (the static rods) than the PNSC and NSP mice groups. NS and PNSC animals exhibited better cerebellar histoarchitecture than PHE-only mice, as evidenced by increased neuronal sizes, densities, and neuropiliary staining. **Conclusion:** The above results indicate the motor coordinative, neuroprotective, and neuro-regenerative effects of Nigella sativa oil in the modelled condition.

Keywords: Nigella sativa, psychosis, tremor, phenol

F1017. Histomorphology of the Anterior Pituitary of *Abelmoscus esculentus* Treated Rats

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Background: The study was aimed at evaluating the histomorphology of the anterior pituitary glands of *Abelmoschus esculentus* treated Wistar rats. **Material and Methods:** Twenty-one Wistar rats weighing about 100-120g were assigned randomly into three groups (A, B, and C) of 7 each. Group A for control received standard growers feed and water, Group B for low dose received food, water, and aqueous extract of *Abelmoschus esculentus* at a dose of 1.0mls/kgBW, and Group C for High dose received food, water, and aqueous extract of *Abelmoschus esculentus* at a dose of 3.0mls/kgBW. Administration was done orally for two weeks. At the end of administration, weights were recorded, and the animals were sacrificed using cervical dislocation. The pituitary gland was harvested and preserved in 10% buffered formalin (NBF), followed by H&E staining. **Results:** Results show an observable significant ($p<0.05$) increase in the final mean body weight when compared with the initial body weight observable in control vs low dose, control vs high dose, and low dose vs control, but not observable in low dose vs high dose and high dose vs control dose. Histological examination shows that the result of the study in the control group of animals revealed secretory cells interspersing the architecture and parenchyma appears normal. However, administration of *Abelmoschus esculentus* at low and high doses shows secretory cells depletion and marked parenchyma loss, and the high dose group shows normal parenchyma with numerous secretory cells. **Conclusion:** The result suggests that intake of *Abelmoschus esculentus* at the recommended dosage may improve cellular activities in the pituitary gland.

Keywords: Anterior pituitary, *Abelmoschus esculentus*

F1018. Ascorbic Acid Enhances Nicotine Neuroprotective Roles in Transferrin-mediated Neurotoxicity

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Introduction: The discovery of effective therapeutic strategies for the treatment of Alzheimer's disease could be advanced by studying the underlying disease bio-logy vis-à-vis iron dyshomeostasis and molecules that modulate nAChRs. Nicotine, being an allosteric modulator of nAChRs, improves memory loss in AD without the withdrawal symptoms observed in orthosteric ligands of nAChRs. Ascorbic acid (AA), on the other hand, is a potent antioxidant molecule with known neuromodulatory effects. This study evaluated the neurotherapeutic advantages of combining Nicotine and ascorbic acid. **Materials and Methods:** Five groups (A-E) of male Wistar rats (n=8/group) were used for this study. Group A (control) was treated with distilled water daily for 8weeks. Transferrin-mediated neuroinflammation was induced in groups B-E through a daily oral infusion with 100 mg/kg of AlCl3 for four weeks. Groups C-E were then post-treated with ascorbic acid (100 mg/kg daily), nicotine (10 mg/kg daily), and nicotine (10mg/kg daily) +ascorbic acid (100mg/kg daily), respectively, for four weeks. Following neuro-be-havioral tests to assess memory indices, the animals were euthanized for post-mortem studies. **Results:** Aluminum induced a reduction in long- and short-term memory indices in addition to perturbed cholinergic activities in the PFC and hippocampus. Atomic absorption spectrometric analysis of these brain regions revealed an increase in intracellular iron, which corresponded to overex-pression of transferrin receptor pro-tein (TRP). Nicotine-ascorbic acid treatment regimen reversed the re-duction of long- and short-term memory indices through the restoration of the cholinergic system. These cor-rel-ated with nicotine-dependent modulation of TRP ex-pression, which was complemented by a significant attenuation of reactive oxygen species mediated by ascorbic acid. **Conclusion:** The study revealed the role of ascorbic acid in enhancing nicotine neuro-modulatory activities in transferrin-mediated behavioral decline and neuroinflammation in the PFC and hippo-campus of Wistar rats.

Keywords: Neurotoxicity, nicotine, ascorbic acid, memory

F1019. Scutellarin Attenuates Inflammatory Activities in the Hippocampus and Cortex in Deltamethrin-induced Oxidative Stress and Behavioral Deficits Via Nrf-2/GFAP Pathway

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Introduction: Neurotoxicity is one of the leading causes of neurodegenerative disorder pathogenesis, resulting in a myriad of symptoms and general deterioration in the quality of life of victims. **Aim**: This study is aimed at investigating the role of scutellarin in the reversal of inflammatory processes and neurotoxic effects of deltamethrin administration. **Materials and Methods:** Twenty-eight (28) adult male Wistar rats were divided into four groups (n = 7). Group A (control) received normal saline solution (NaCl), Group B received 0.5 mg/kg bw of DM only intraperitoneally (i.p.), Group C received 30 mg/kg bw of SCT simultaneously with 0.5 mg/kg bw of Deltamethrin i.p. (DM), Group D received 30 mg/kg bw of SCT only. The administration was done through oral gavage daily for 45 days. After the last treatment, neurobehavioral tests (Morris Water Maze (MWM), Y-maze, and Open Field tests) were conducted; animals were sacrificed and brain regions harvested for histological and immunohistochemical analysis as well as biochemical estimations of levels of antioxidants, oxidative stress markers, and enzyme activities. **Results:** The results of this study showed a severe decline in learning and memory capacity, a decrease in antioxidant enzyme expression and activity, alterations in neurotransmitter function, an increase in oxidative stress levels, distortion and degeneration of cortical and hippocampal morphological parameters, and elevated Nrf-2 expression in the test subjects as a result of deltamethrin administration. Scutellarin treatment, however, reversed these deleterious and detrimental effects. **Conclusion:** This study proved scutellarin administration to be potent in the reversal of neurodegenerative processes and cognitive decline as induced by deltamethrin treatment.

Keywords: Neurotoxicity, Deltamethrin, Antioxidants, NRF-2 expression, Scutellarin.

F1020. Anxiolytic Properties of Turmeric in Ketamine-induced Cerebellar Toxicity in Adult Wistar Rats

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Introduction*: Curcuma longa* is an important fraction of turmeric used as an antioxidant and anti-inflammatory. **Aim**: To determine neuro-curative effects of *C. longa* in ketamine induced cerebellar toxicity of adult female Wistar rats. **Materials and Methods:** 30 adult Wistar rats were purchased from the animal house of AE-FUNAI with an initial weight of 150g or above. They were divided into five groups of six rats each after seven days of acclimatization. Group A served as the positive control and received water and feed *ad libitum*. Group B was given 10mg/kg of Ketamine only and served as the ketamine untreated group. Groups C, D, and E received intraperitoneal injection of 10mg/kg of Ketamine for 4 times at an interval of 2 days and 24 hours after the last dose. The said groups received 200mg/kg, 400mg/kg, and 600mg/kg of turmeric orally for two weeks. Groups C, D, and E served as low, medium, and high dose respectively. **Result:** There was a reduction in body weight of the animal, increased locomotive activity may be a result of ketamine, and a decrease in anxiety might result from turmeric. Biochemically, the concentration of GPO, GSH, and GR may be reduced due to the effect of the extract. The photomicrograph showed mild healing after treatment. **Conclusion**: ketamine has been identified to have common characteristics such as neurotoxicity; turmeric showed its ameliorative effects on ketamine induced toxicity on the cerebellum.

Keywords: Anxiety, Anxiolytic, Anxiogenic, Toxicity, Turmeric

F1021. λ-cyhalothrin caused Inflammation, Glia Activation, GABAergic Interneuron Disruption, and Cell Death in the Hippocampus of Rats

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Background: Glia-mediated neuroinflammation and degeneration of inhibitory gamma-aminobutyric acid (GABAergic)-ergic interneurons are some of the hallmarks of pyrethroid neurotoxicity. Here we investigated the sex specific responses of inflammatory cytokines, microglia, astrocyte and parvalbumin-expressing inhibitory GABAergic interneurons to λ-cyhalothrin (LCT) exposures in rats. **Methods:** Equal numbers of male and female rats were given oral corn oil, 2 mg/kg.bw and 4 mg/kg.bw of LCT for fourteen days. They were euthanized on day 15, brains were excised and hippocampus isolated for IL-1β and TNF-α analysis. In addition, some samples were processed for IBA1, GFAP, PV, and Caspase 3 expressions in the hippocampus. **Results:** LCT administration results in an increase in IL-1β and TNF-α levels, as well as activation of microglia (IBA1+) and reactive astrocyte (GFAP+) expressions. Further analysis revealed a depletion in PV+ GABAergic interneurons and high Caspase 3 immunoreactivity in the hippocampus of the exposed rats. These effects are more pronounced in males compared to females**. Conclusion:** Taken together, LCT administration induced neuroinflammation, disrupted GABAergic interneuron integrity, and caused cell death via activation of microglia and reactive astrogliosis.

Keywords: glia, cytokines, GABA, λ-cyhalothrin, hippocampus, gender

F1022. Histoarchitectural and Biochemical Effects of Coconut Oil on the Cerebellum of Adult Wistar Rats

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Background: Coconut oil is the coconut oil produced through the wet method. In recent years, there has been a rapid increase in the demand for and the consumption of coconut oil (CO). This increase in the demand for CO is a result of a number of health benefits that have been attributed to the oil. Coconut oil has many advantages, which include the health benefits from the retained vitamins and antioxidants, the antimicrobial and antiviral activity from the lauric acid components, and its easy digestibility from the medium chain fatty acids. The effect of coconut oil, with particular reference to histology and neurochemistry of the cerebellum, was evaluated in this study. **Materials and Methodology**: 36 adult Wistar rats of male and female in equal proportion, weighing between 170-200 g, were used in this study and randomly divided into 3 groups of six animals and marked as: Control, low dose, and high dose, respectively. The treatment involved the oral administration of distilled water for the control group and the oral administration of CO for the high-dose and the low-dose groups. This was a daily procedure done consecutively for 21 days. The experimental animals were euthanized at day 21. Blood samples were collected by direct cardiac puncture into heparinized bottles and then centrifuged at 4000 revolutions per minute (rpm) for 10 minutes. After which, the supernatants were separated into plain sample bottles and stored in a deep freezer until later analyzed. The brains were harvested, fixed in 10% formal saline, and processed for histology using Hematoxylin and Eosin stain. **Result and Discussion:** The extract was observed to show no significant change in brain antioxidant enzymes and also showed no significant change in lipid peroxide level, both of which may help alleviate oxidative stress. The cellular morphology of the cerebellar tissues was preserved.

Keywords: Wistar rats; Coconut oil extract; Brain antioxidant enzymes; Hematoxylin & Eosin stain; Cerebellum; Oxidative stress.

F1023. Influence of *Nigella Sativa* Seed Oil on the Amygdalic Properties of Ethanol-induced ADHD in Balb/C Mice

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Introduction: ADHD is a neurodevelopmental disorder characterized by inattention, hyperactivity, and impulsivity, and has been associated with the amygdala, which is responsible for emotion regulation, together with cognitive function. The therapeutic agent used was *Nigella sativa seed* oil for its treatment of numerous health conditions. **Aim of study:** The aim of the research was to assess the influence of *Nigella sativa* seed oil on the amygdalic properties of mouse pups exposed to alcohol during the early stage of brain development. **Materials and Methods**: Four groups were investigated. (a) CON group (n=12) dams of these pups were given feeds and water as well as normal saline, (b) Eth group (n=2) dams of these pups were administered ethanol, (c) NS group (n=5) dams of these pups were administered *Nigella sativa* seed oil only, (d) NSE group (n=5) dams were administered 1ml/kg *Nigella sativa* seed oil ten days before mating followed by 7.59ml/kg of ethanol from GD7-GD16. An assay for anxiety employing the elevated plus maze was conducted after weaning. On postnatal day 31, the mouse pups were all sacrificed, and the amygdala was assayed neurochemically. **Results**: The CON and NS groups were anxious compared to the Eth group. Dopamine level was significantly ($p< 0.05$) high in the NS and NSE group compared to the CON group. **Discussion**: This study confirms the dopaminergic and anxiolytic potentials of *Nigella sativa* seed oil and ethanol, respectively. However, further investigations are recommended to substantiate these findings in the ADHD condition.

Keywords: ADHD, *Nigella sativa* seed oil, anxiety, Ethanol, Balb/c.

F1024. Locomotory Impacts of *Nigella Sativa* on Ethanol Exposure in Balb/C Mice Models of Attention Deficit and Hyperactivity Disorder

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Introduction: ADHD is a neurological disorder characterized by hyperactivity, impulsivity, and inattentiveness, usually linked with motor balance and coordination impairments. *Nigella sativa* is a therapeutic plant with wide-ranging healing potentials. **Aim of study:** This research investigated the prophylactic effect of *Nigella sativa* seed oil on locomotory and sensory relay abilities of mice prenatally induced with ADHD using ethanol through histological, neurobehavioral, and neurochemical assays. **Materials and Methods**: Sixty (60) BALB/c dams about 3 weeks old were equally divided into 4 groups and orally administered thus: CNTRL (normal saline; 10ml/kg), ETHN (ethanol, GD 6-16; 7.59ml/kg), NS (*Nigella sativa*10 days before copulation; 1ml/kg) and NSET (pre-treated with *Nigella sativa* before ethanol administration). Motor balance and co-ordination was assayed via static rod tests. Cerebellar histoarchitecture, dopamine, glutamate, and Glutathione peroxidase (GPX) activity were measured using hematoxylin and eosin stains (H&E) and spectrophotometry, respectively. **Results**: Significantly impaired motor performance, hyperactivity, atrophy, and neuronal loss in the cerebellum, and increased dopamine levels were exhibited by pups that were prenatally exposed to ethanol. Also, increased relative brain weights (RBW), despite a significant decrease ($p < 0.05$) in body weight, were recorded in these pups. *Nigella sativa* seed oil was significantly prophylactic against these ADHD deficits as the NS and NSET pups displayed improved cognitive functions, motor balance, and coordination, as well as increased body weight, RBW, Glutamate, and GPX activity ($p<0.05$). **Conclusion**: This study demonstrated the prophylactic potentials of *Nigella sativa* seed oil in mice with ADHD, while recommending the use of Golgi and Nissl markers for further histological appreciation of the cerebellar neuroarchitecture.

Keywords: ADHD, ethanol, *Nigella sativa*, BALB/c.

F1025. The Impact of *Nigella Sativa Oil* on the Cerebellar Properties of Harmaline-induced Mice Model of Essential Tremor

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Introduction: Essential tremor is an unintentional, repetitive movement of contending muscle groups with relatively frequent and variable amplitude. Harmaline is a tremorgenic beta-carboline administered to mice to induce tremor. **Aim of study***: Sativa* oil, due to its medicinal properties, was investigated in this study as a possible therapy for the cerebellar deficits induced by harmaline in mice. **Materials and Methods**: Seventy-five adult male mice weighing averagely 23±3g, were acclimatized and randomized into 5 groups: CNTRL (administered normal saline only), HML (administered harmaline only), NSO (administered Nigella sativa oil only), HNS (administered harmaline and Nigella sativa oil concurrently), and NSH (administered *Nigella sativa* followed by harmaline). Motor coordination was assessed using the static rod and parallel bar test. Cerebelli were excised and assayed neurochemically for dopamine, glutamate, and glutathione peroxidase (GPX) and histologically using hematoxylin & eosin (H&E) stains. **Results**: HML group showed the least transit time, which shows harmaline increases atrophy, thus reducing functionality of the cerebellum, while the HNS group showed the best transit time revealing *Nigella Sativa oil's* ameliorative ability on the organ through significant increase ($p<0.05$) in brain and body weights as well as feed and water intake. **Conclusion**: In conclusion, harmaline reduced motor coordination while *Nigella Sativa* oil ameliorated the toxicity of harmaline.

Keywords: Essential tremor, Harmaline, Cerebellum, *Nigella Sativa* oil.

F1026. Hippocampo-protective Roles of *Nigella Sativa* in Socially Isolated Mice Model of Schizophrenia

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Introduction: Schizophrenia is a chronic, debilitating mental disorder, modelled developmentally in animals by social isolation rearing (SIR). This study assessed the effects of Nigella sativa oil, a multi-therapeutic plant oil, on the hippocampal functions of socially isolated mice, while reappraising the validity of SIR in modeling schizophrenia. **Materials and Methods**: Five groups (tagged CTRL, NS, SIR-NS, NS-SIR, and SIR) consisting of 12 BALB/c pups each were employed for the research. Weaned after 3 weeks, the pups were either reared socially on normal feed and saline (CTRL) or Nigella sativa oil (NS); or socially isolated and treated with either normal saline (SIR-NS) or Nigella sativa oil (SIR-NS); or had only been prenatally exposed to Nigella sativa (NS-SIR). Normal saline & Nigella sativa were orally administered at 10ml/kg and 1ml/kg, respectively. Spatial memory was assayed using the object location test, while neurohistological assessments were also conducted on the hippocampal tissues. **Results**: Nigella sativa increased object location index and relative brain weight in the NS-SIR mice following maternal exposure. The NS mice also showed the highest levels of hippocampal glutamate and GPX, while Nigella sativa also increased these parameters in the SIR-NS mice. No significant difference was, however, observed in the hippocampal neuroarchitecture across the groups. The socially isolated mice, in addition, exhibited body weight loss despite consuming the most feed daily, but such a magnitude of weight loss was prevented and ameliorated by Nigella sativa exposure. **Conclusion**: This study suggests the prophylactic potentials of maternal Nigella sativa exposure before conception as modelled here. The schizotypic deficits recorded in the isolated mice weren't significant. We therefore recommend the use of total separation during isolation, as well as the use of Nissl and Dendritic markers in the histological evaluation of the hippocampus for further elucidation.

Keywords: *Nigella sativa,* Schizophrenia, Hippocampus, Social Isolation Rearing

F1027. Amelioration of Schizophrenic Symptoms in Amygdala of Developmentally Modelled Balb/C Mice using *Nigella Sativa* Oil

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Introduction: Social isolation rearing (SIR) in mice, especially during adolescence, is a developmental model of schizophrenia, a mental disorder characterized by abnormal behavior and mental health problems like anxiety. *Nigella sativa* (NS) is a historically medicinal plant. The amygdala is an implicated brain region in the control of fear, anxiety, and emotion. **Aim of study**: To evaluate the effect NSO has on the neuroarchitecture, neurochemical, and neurobehavioral parameters of the amygdala in mice. Food and water consumption, as well glutamate and GPX levels were **Materials and Methods:** Sixty (60) BALB/c mice were used all of which were weaned after 21 days of birth and grouped into CTRL (reared socially on normal chow only), SIR (socially isolated on normal chow only), NS (administered 1ml/kg NSO daily), SIR-NSC (socially isolated but concurrently administered 1ml/kg NSO daily), SIR-NS (socially isolated on normal chow before administration with 1ml/kg NSO for same duration as isolated), NS-SIR (dams pre-administered 1ml/kg NSO for 10 days prior to mating while their pups were commenced on isolation immediately post-weaning). Administration lasted for 2 weeks, and their anxiety levels were assayed afterwards using the elevated plus maze. The research was conducted in conformance with the Animal Research Ethics guidelines of Olabisi Onabanjo University. **Result**: SIR mice exhibited the highest open arm entries and exploration, indicative of anxiolysis. SIR had the highest daily food and water consumption and percentage body weight increase. Glutamate and GABA levels were higher in the amygdala of mice that received NSO compared with untreated SIR mice. Brain-body ratio was also higher in all NSO-treated mice than in the untreated ones. Distortions in the cells of the SIR group were observed. **Discussion**: *Nigella sativa* was shown to have an ameliorating effect against the neurobehavioral, histological, and neurochemical deficits that were observed in the schizophrenia models.

Keywords: *Nigella sativa, Social* isolation rearing, BALB/c, schizophrenia, elevated plus maze.

F1028. *Nigella Sativa* Restored Cerebellar Deficits in Social Isolation Model of Schizophrenia in Balb/C Mice

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Introduction: Schizophrenia is a severe psychiatric illness manifesting in disruptions in the normal functioning of the human mind. NS is a diverse therapeutic plant used in the treatment of different diseases and ailments. Social isolation rearing can trigger a variety of psychiatric diseases, including schizophrenia. Dysco-ordination of sensorimotor and mental processes, which are symptoms of schizophrenia, occurs when the cerebellum is affected. **Aim**: To evaluate the restorative potential of NSO on the cerebellar properties of the SIR model of schizophrenia in mice through neurobehavioral, histological, and neurochemical assays. **Materials and Methods**: BALB/c mice were divided equally immediately after weaning (3 weeks) into 6 groups namely, CTRL (reared socially on normal chow only), SIR (socially isolated on normal chow only), NS (socially reared and administered 1ml/kg NSO daily), SIR-NSC (socially isolated while concurrently administered 1ml/kg NSO daily), SIR-NS (socially isolated on normal chow before administration with 1ml/kg NSO), NS-SIR (dams pre-administered 1ml/kg NSO for 10 days prior to mating while their pups were isolated immediately after weaning). Social isolation rearing was executed by housing each mouse in a separate cage (with adequate spacing and ventilation), preventing all tactile and visual cues from all other mice. The isolation period lasted 8 weeks. **Results:** There is a reduced level of anxiety across the *Nigella sativa-treated* groups compared to the untreated groups. Higher glutamate and GABA were recorded in the NSO-treated groups. Brain-body ratio was higher across all groups treated with *NSO* compared to the other groups. NSO-treated groups had lower neural density compared to the SIR group. **Conclusion:** Nigella sativa oil was shown to manifest its protective capacity on the NS group and its restorative potential on the post-treated group against the neurobehavioral, histological, and neurochemical cerebellar phenotypes in BALB/c mice.

Keywords: *Nigella sativa***,** Social isolation rearing, Schizophrenia, Glutamate, GABA

F2001. Anatomical Studies on the Thyroid Gland of One-Humped Camel (Camelus dromedarius) found in the Nigeria-Niger Border Region

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Thirty-one-humped camels, with an equal number of males and female were grouped into three: juvenile (Group A), adult (Group B), and old age (Group C), and were used for the study. The camel thyroid gland tissues were obtained from camels at the Kano main abattoir. The gross anatomical study of the thyroid gland was done to determine its shapes, texture, color, surfaces, and borders. Measurements of the weights were obtained using a digital weighing balance, and width, thickness, and length were taken using a digital Vernier caliper. The glands were prepared for routine histological study using hematoxylin and eosin (H and E) stain for light microscopy. Acid Hydrolysis Azure. A special stain was used for the demonstration of parafollicular cells, while Periodic Acid Schiff (PAS) special stain was used to demonstrate glycogen and glycoprotein. Hormonal assays of Thyroid Stimulating Hormone (TSH), Triiodothyronine (T3), and Tetraiodothyronine (T4) were studied using three different Enzyme-Linked Immunosorbent Servent Assay (ELISA) Kits for quantitative analysis of Triiodothyronine (T3), Tetraiodothyronine (T4), and Thyroid Stimulating Hormone (TSH) in the one-humped camel. Part of the results showed that the morphometric measurements, especially the weight of the thyroid gland in the one-humped camel, were directly proportional to the age of the camels, while the concentration of the thyroid hormones (T3 and T4) was inversely proportional to the age and weight of the thyroid gland in the indigenous one-humped camel. The Histochemical studies revealed the presence of follicular and parafollicular cells in all the groups, appearances of numerous vacuolated colloids in the follicles, and the follicular cells indicated apoptosis in the older camels' thyroid tissues. The results suggest that the one-humped camel could be a better experimental research model for understanding the etiology and possible solution to human hyper and hypothyroidism and other related diseases, as the study demonstrated the anatomical features of the thyroid gland.

Keywords: Thyroid Histochemistry, Camel Triiodothyronine, Camel Tetraiodothyronine, One-humped Camel

F2002. The Effect of Maternal Age and Ethnic Backgrounds on Birth Weight of Newborns in Ahmadu Bello University Teaching Hospital, Zaria, 1996-2003

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Introduction: Maternal characteristics like maternal age, height, weight, and ethnic background have been significantly associated with newborn outcomes, especially birth weight (BW). **Aim of the Study:** This study aims to investigate the effect of maternal age (MA) and ethnic background on BW and mode of delivery. **Materials and Methods:** A dataset of 5438 maternity records covering deliveries for eight years (1996-2003) was used for this study. The dataset was analyzed according to MA, maternal ethnic background, mode of delivery, BW according to the sex of newborns, and the incidence of macrosomia in the population. **Results:** The results showed that male newborns have higher BW than the female newborns (males= 2.97 ± 0.57, females= 2.92 ± 0.67, t=3.54 P<0.001), indicating that there is a positive relationship between maternal age and BW of the newborn (r = 0.16, P < 0.001). For the mode of delivery, the Cesarean section (CS) was given attention; there was also a strong association between maternal age and the incidence of CS (χ^2 = 43.59, P < 0.001). This study has shown that the Igbo ethnic groups have higher BWs, which may be the predisposing factor to a higher percentage of cesarean deliveries. The prevalence of microsomia was higher in the female newborns (χ^2= 6.03, df= 1, P<0.01), while macrosomia was the same in both sexes. **Conclusion:** In conclusion, male newborns have higher BW than females; MA has a significant influence on BW and mode of delivery, and maternal ethnic background also proved to be important in determining the BW of newborns.

Keywords: Birth weight, newborns, males, females, age, cesarean section, microsomia

F2003. JAK/STAT Expression in the Cardiac and Skeletal Muscles of Ts1Cje Mouse Model of Down Syndrome

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Introduction: Down syndrome (DS) is caused by trisomy of human chromosome 21 (HSA21). Motor dysfunction due to hypotonia has limited labor productivity and has significant effects on socio-economic status in DS individuals. Ts1Cje, a mouse model of DS that exhibits muscle weakness, was employed. **Aim of the study**: To investigate the expression level of selected JAK/STAT genes in skeletal and cardiac muscles of Ts1Cje mice. **Materials and Methods:** This study was approved by the Institutional Animal Care and Use Committee, Universiti Putra Malaysia (Ref.: UPM/FPSK/PADS/BR-UUH/00494). Skeletal and cardiac muscles were harvested from the Ts1Cje (C57BL/6) postnatal day 60-70 mice and corresponding wild-type littermates. RNA extracted from these tissues was subjected to quantitative expression profiling of *JAK1, JAK2, STAT3, and STAT6*. The real-time quantitative PCR (RT-qPCR) method was used for the profiling. **Results:** The result showed a significant increase in the expression level of *JAK1, JAK2, STAT3, and STAT6* in the skeletal muscle ($P < 0.001$) of Ts1Cje mice compared to the wild type. There was an increase in the expression level of these genes in the cardiac muscle of Ts1Cje mice compared to wild type, but it is not statistically significant. Expression level of *JAK2* was found to be higher in skeletal muscle (0.2595 ± 0.031) than in cardiac muscle (0.0825 ± 0.002). **Conclusions:** Our findings showed increased expression of *JAK1, JAK2, STAT3 & STAT6* in the skeletal muscle of Ts1Cje mice.

Keywords: Down syndrome, gene expression, JAK/STAT, skeletal and cardiac muscles.

F2004. Effects of COVID-19 Lockdown on Gastrointestinal Complications Among the Nigerian Population

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Background: The aim of this study was to examine the effects of COVID-19 lockdown on patients with gastrointestinal complications among Nigerian population with the aim of mitigating similar challenges in future. **Materials and Methods**: The study was an online based cross-sectional survey which involved the use of online based questionnaire survey to harness the relevant information from participants. Participants were Nigerian citizens across the country between 20 and 80 years old. A total number of 542 participants took part in the study. Data collection included both independent and dependent variables. All the responses were extracted from Google Forms and exported to a Microsoft Excel Sheet for proper cleaning and analysis. **Results**: The result showed that out of a total number of 542 participants 45.6% were males and 54.4% were females. 27.7% of participants experienced gastrointestinal tract complications during the COVID-19 lockdown with 39.9% depending on self-medication for the immediate relief of their gastrointestinal tract ailment(s). About 67.9% of participants had their jobs affected during COVID-19 lockdown while the financial strength of 70.8% of the participants were grossly affected. 54.6% of participants' medication purchasing power were affected during the lockdown and about 39.5% could not have regular appointment with their physician. After the easing of the lockdown, only 33% of the participants were able to keep appointment with their physician. About 56.8% of participants experienced weight gain during the lockdown. **Conclusions**: This study concluded that a reasonable number of the Nigerian population suffered gastrointestinal tract complication(s) during the COVID-19 lockdown with some unable to access health facilities probably due to the restriction of clinic appointments to emergency cases alone. The easing of lockdown did not abate the suffering of these patients either due to financial incapacitation or fear of contracting the disease.

Keywords: COVID-19, Gastrointestinal complications, Lockdown, Nigeria, Patients

F2005. Protective Potentials of Thymoquinone on Cyclophosphamide-induced Hepatotoxicity in Adolescent Wistar Rats

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Introduction: The hepatotoxicity of drugs is the main cause of drug withdrawal from the pharmaceutical market and interruption of the development of new molecules. Liver damage is so diverse that it reproduces almost all non-iatrogenic liver diseases. Cyclophosphamide has been used as an anticancer medication for a long time. Despite its beneficial effects in cancer treatment, it has a wide spectrum of harmful effects on normal bodily cells, particularly the liver. **Aim**: This study investigated the possible protective potential of thymoquinone on Cyclophosphamide-induced hepatotoxicity. **Material and Methods**: In this study, thirty male adolescent Wistar rats weighing between 100 g and 110 g were used. They were divided into six groups (n=5) treated as follows: NS (control group) had normal saline, CYP had cyclophosphamide (20mg/kg) for 7 days, TQ5 had 5mg/kg of thymoquinone, TQ10 had 10 mg/kg of thymoquinone, CTQ5 had cyclophosphamide (20mg/kg) and thymoquinone (5mg/kg), and CTQ10 had cyclophosphamide (20mg/kg) and thymoquinone (10mg/kg) for 21days. Liver functions were measured, and the expression of the liver PCNA was assessed using immunohistochemistry. The results are reported as mean SEM, and all statistical comparisons were made using one-way analysis of variance (ANOVA). **Results:** Cyclophosphamide had a negative impact on the biochemical and histoarchitectural condition of the liver, according to the findings. The cyclophosphamide-treated groups had significantly lower declines in body and liver weight, as well as altered hepatic cytoarchitecture and decreased hepatic function. Thymoquinone was effective in protecting against these alterations. This is possibly due to its antioxidant and anti-inflammatory activities.

Keywords: Cyclophosphamide, Thymoquinone, Hepatotoxicity, Hepatocytes, Proliferating Cell Nuclear Antigen

F2006. Histomorphological Changes in the Ovarian and Uterine Tissues of Adult Wistar Rats following Exposure to Aqueous Extract of *Aspilia Africana* Flowers

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Introduction: *Aspilia africana* is a tropical plant that has recently gained relevance and popularity due to its ability to affect changes in the reproductive system/functions both in males and females. Besides its roles in fertility, it has been reported to possess antibacterial, antimicrobial, wound healing, and anti-hemorrhagic effects, the latter being the reason it is called the hemorrhagic plant. **Aim**: To assess the effect of graded dosages of aqueous extract of *Aspilia africana* flowers on the histomorphological profiles of ovarian and uterine tissues of female *Wistar* rats. **Materials and Methods:** A total of twenty (20) rats were used for this study and divided into four (4) groups of e (5) animals each. Control group (A) was given distilled water while groups B, C, and D were administered 150mg/kg, 200mg/kg, and 300mg/kg for 21 days by oral gavage. Thereafter, the ovaries and uterine tissues were excised, weighed, and put through routine histological processing. **Results:** The results obtained from this study revealed normal germinal epithelium except in the group treated with 200mg of the extract which showed some degree of distortion, patchy areas of stromal degeneration, stromal congestion, atretic follicles with pyknotic granulosa cells and degenerating follicles lacking oocyte, which was a prominent feature of all the follicles in the group treated with 300mg of the extract. The uterine endometrium of the extract-treated groups, on the other hand, showed thickening of the lining epithelium, mild to moderate endometrial hyperplasia, focal areas of ulcerations, and mild infiltration of inflammatory cells. **Conclusion:** Administration of aqueous flower extract of *A. africana* produced deleterious changes in the ovaries with increased follicular atresia in preovulatory follicles, which may impair ovulation and fertility. It also caused injurious effects on the uterine tissues, which can also lead to reproductive dysfunction.

Keywords: *Aspilia africana*, Ovarian tissues, Uterine tissues, Wistar rats, Reproductive Dysfunction.

F2007. Educational Resources Employed by Health Profession Students for Online Learning of Anatomy amid the COVID-19 Pandemic

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Introduction: During the first COVID-19 lockdown in Nigeria, several institutions of learning were closed. Most private universities in Nigeria resorted to online lectures to ensure continuity of learning. This is the first time emerging technological tools have been used on such a scale to deliver anatomy education in Nigeria. **Aim of the Study:** This survey was carried out to provide insight into the tools used by students during this period for online learning of Anatomy. **Materials and Methods:** A cross-sectional, online-based study was conducted from 28th July to 10th September 2020. Data was obtained using a self-designed 30-item questionnaire, which collected information from respondents regarding the resources used for learning anatomy online during the lockdown. Data collected via Google Forms was downloaded, sorted, and transferred to SPSS (Windows v 22) for analysis. The socio-demographic details were analyzed as frequencies and percentages, while questionnaire items were analyzed as frequencies, percentages, item mean, and standard deviation. **Results:** The most common platforms used by students for studies in anatomy included WhatsApp, Zoom, Google Classroom, YouTube, and Microsoft Teams. Fifty-eight percent (58%) used their mobile phones as the primary device for study, while 35% used laptops. Students also supplemented their learning after the online classes by reading lecture notes /slides, watching online videos, reading textbooks, and participating in peer discussions. **Conclusion:** The transition to an online mode of learning, though unexpected, allowed for continuous learning while schools were shut down due to the pandemic. The students demonstrated their ability to cope with this sudden transition by employing available resources to engage in learning even outside of the school environment. If online learning is integrated into mainstream studies, students will be able to actively engage in learning. However, areas of challenges such as training and provision of enhanced facilities, shall be required.

Keywords: Educational Technology; Anatomy Education; Online learning; COVID-19; Pandemic

F2008. A Review of Contemporary Expectations of the Anatomy Field of Study: Implications towards Professionalism

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Introduction: Anatomy, as a foremost medical discipline, has evolved innovatively and entrepreneurially to achieve a professional status in content and design. **Aim:** The aim of the study is to x-ray the contemporary realities and peculiarities of Anatomy as a field alia its graduates visa-viz the perceptions, problems, and prospects in the Nigerian state. **Materials and Methods:** A review study design was undertaken from observations and reports of students, graduates, and teachers, highlighting factors that would properly enlighten stakeholders of the status befitting of Anatomy as a field of study. **Results and Discussion:** The study showed that there are perceptions that turn out to be misconceptions slow-balling into age-long challenges with direct negligence to address the core issue of development. The study revealed the need to take Anatomy as a field of study to the professionalism status it deserves by activating its powers and by virtue of its opportunities. The reviews of this study form part of policy material that will help to further strengthen intellectual discourse on the path of Anatomy education, as recommended.

KEYWORDS: Professionalism, Occupation, Anatomy Act, Perceptions, Internship.

F2009. Classroom Examination Versus Online Examination in Anatomy Courses in a Nigerian University – Assessment of Students' Performances before and during the COVID-19 Pandemic

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Introduction: In basic medical sciences and pre-clinical medicine, anatomy courses such as gross anatomy, histology, cytology, embryology, amongst others, represent vital components of the curriculum. As such, performances of students during examination or assessment in these courses constitute a vital part of their overall academic performance, and only satisfactory academic performance is, in turn, used as the requirement for progression to higher levels of study. Moreover, various factors, including delivery form and style, have been reported to influence performances of students in anatomy courses. **Aim of study:** This study was carried out to assess students' performances in selected anatomy courses during classroom and online examinations conducted before and during Covid-19 pandemic, respectively, in a Nigerian University. **Materials and Methods:** This study involved 120 subjects, who were second-year undergraduate students of Anatomy, Nursing, and Physiotherapy degree programs in the Faculty of Basic Medical Sciences of Redeemer's University, Ede, Nigeria. The results of the end of first semester classroom and end of second semester online examinations in gross anatomy, histology & cytology, and embryology & genetics were obtained from the Department of Human Anatomy and statistically analyzed. **Results:** This showed a significant ($p<0.05$) increase in the students' performances in all three anatomy courses during online examination compared to classroom examination. Furthermore, there was a significant increase in all pass grades (≥70%; 60%-69%; 50%-59%) in the online examination of the three anatomy courses. Conversely, there was a significant reduction in the total number of failing grades (<50%) in the three courses during the online examination. **Conclusion:** The significantly improved students' performances during online examination could be attributed to their increased participation following the adoption of online teaching platforms at the onset of Covid-19 pandemic. In post-covid era, a hybrid of in-class and online teaching and assessment strategies is therefore recommended.
KEYWORDS: Anatomy education, classroom examination, online examination, Nigerian University

F2010. A Study on the Perception of Medical Students on the Methods of Teaching Anatomy

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Introduction: Anatomy knowledge is critical in medical training, and it remains at the core of the medical curriculum. Anatomy medical education is currently undergoing various modifications to meet the demands of modern medical practice. **Aim of Study**: This study assessed medical students' perception of the type of medical curriculum implemented and the methods of teaching Anatomy. **Materials and Methods:** A five-point Likert scale questionnaire was designed to address the Methods of teaching Anatomy, as adopted by the department of Anatomy, Edo University, Iyambo, Edo state, Nigeria, was completed by ninety- three (93) 200L and 300L Medical students exposed to the curriculum. **Results:** Our findings showed that 97.8% medical students were aware of the type of Curriculum, but 78.5% know that it is an integrated Curriculum. However, 36.6% knows that horizontal integration was implemented in Basic Medical Courses. 67.7% agrees Anatomy is important in medical training. 60.2% agrees horizontal integration improves anatomy knowledge. Students' preference pattern for methods of teaching Anatomy differs, 33.3% for Traditional Lecture room teaching, 58.1% for use of PowerPoint, 53.8% for Museum teaching, 53.8% for combination of Classroom and Cadaver dissection (CD), 49.5% for use of Technology enhanced teaching (the Anatomage), and 61.3% for combination of Classroom+CD+tutorials. 55.9% agree that the time allocated for CD was adequate, and 66.3% agrees it improves their Anatomy knowledge via peer-learning, 65.2% sees it deepen their understanding of Anatomy. Although CD is good, 45.2% disagree that it should not be replaced with lectures, while 32.3% disagree with it being replaced with prosection, and 30.1 % against replacement with virtual dissection using Anatomage. **Conclusion:** An integrated medical curriculum is good. Horizontal integration of the Anatomy course model improves Anatomy understanding and knowledge in addition to the combined methods of teaching Anatomy in a new sub-Saharan medical setting.

F2011. Alternative Research Model for Biomedical Research in Nigeria

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Introduction: Obvious practical and ethical obstacles strictly limit the scope for using humans as experimental specimens in biomedical science. Hence, the use of animals, especially rodents, as a conventional experimental research model, which has been responsible for many of the biomedical advances in the majority of human-related conditions, not just in Nigeria but in Africa and the globe for a millennium. However, the recent rise in ethical concern associated with the welfare of these animals has led to the creation and implementation of policies surrounding their experimental use. These are as explained in the book; 3R's Principles of Russell-Burch of "reduction, replacement, and refinement" in the use of experimental model animals. Which have a global acceptance and have implementation guidelines following the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs) and the Animal Research: reporting of *In Vivo* Experiments (ARRIVE) guidelines. **Aim of Study:** Therefore, to eliminate speculation of manuscript rejection based on animal models, we would like to encourage the use of alternative experimental models for Nigerian biomedical researchers. This can improve and strengthen Nigerian research outcomes that are globally accepted while fulfilling the Principles of 3R's. **Problem Statement***:* Nigerian and other African biomedical researchers publish quite a number of novel experimental findings yearly; however, the majority of these are not being accessed and/or recognised by the international biomedical community due to some limitations. These include: poor quality of articles, poor manuscript, journal assessment, journal indexing, and financial constraints, among others. African biomedicals researcher are said to face a high manuscript rejection rate by international journals. These might be rejected due to the procedure/ methodology screening stage associated with ethical-related issues, study design, study model, number of study modes, and the methodology**.**

Keywords: Nigeria, Biomedical, Experimental Model, Animal, 3Rs.

F2012. Science Communication Prospects in Anatomical Sciences; Annals from Olabisi Onabanjo University

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Introduction: Educating society about scientific knowledge and discoveries through science communication is critical to all scientific disciplines, including Anatomy. The rarity of this has, however, cultivated the low level of interest and awareness of students about the prospects of anatomy and other biomedical life science courses over the years, particularly in an educational setting, where such students are prone to an inferiority complex. This backdrop inspired maiden Brain & Science Sensitization Outreach (BSSO-2021). **Aim**: The program aimed at inspiring and motivating students (especially girls) of Nigerian secondary schools and Universities towards developing genuine interests and taking up career paths in life science courses generally. **Methodology**: Organized by the Neurophytotherapy Research Unit (NPTRU), Department of Anatomy, Olabisi Onabanjo University (OOU), and sponsored by L'Oreal Foundation for Women in Science through TReND in Africa, the 5-day outreach engaged six secondary schools and university student representatives across the Departments of Anatomy, Medicine, Nursing, Pharmacology, Pharmacy, and Physiology in OOU. Virtual career lectures were delivered by international speakers and graduating student members of NPTRU (with viewing centers simultaneously coordinated across the participating schools). Physical events included a laboratory tour, an essay competition, a brain spelling bee, a science debate, a brain sensitization rally to address the local community, and online sharing of brain health tips. Certificates and stationery prizes were awarded to the best 3 in all competitions for both secondary and tertiary categories. Feedbacks were collected from participants and their teachers through surveys distributed after each day of the event. **Results**: As revealed by the survey, the event was interesting, enjoyable, and rated overall as either good or very good by 95% of the participants. It also increased their awareness about different life science career options and motivated them to work harder in school, having inspired them to become scientists. To improve future editions and their impact, they suggested that the event be organized more often, with cash prizes added, and with career lectures held physically for better interaction with the speakers. **Conclusion**: The NPTRU's BSSO-2021 was a success, as feedback from participants and their teachers showed appreciation of the initiative and their willingness to participate in future editions. It is hoped that the event marked the beginning of further outreach and science communication programs from Anatomy departments across Nigeria and Africa.

Keywords: Anatomy, Science communication, Sensitization, Career, Life science

F2013. Evaluation of Decomposition Rates and Patterns Between Housed and Open Earth Surface Porcine Carrions in a Tropical Savanah Climate of Northern Cross River State, Nigeria

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Introduction: The assessment of the rate and pattern of decomposition is a basic tool in the investigation of crimes involving death and in forensic practice around the globe. **Aim**: This study is aimed at assessing the pattern of decomposition of porcine carrions in housed and open earth surface environments. **Materials and Methods:** This study involved two pigs (*sus scrofa domestica*) weighing 18kg and 19kg, respectively. Both pigs were sacrificed by strangulation, one kept on the open earth surface and the second kept in a cemented, roofed, and highly ventilated room. This research lasted for a period of thirty (30) days. Rectal temperatures were taken on both carrions before and after death to determine algor mortis. Subsequently, the rectal and ambient temperature checks were done periodically at ten (10) minute intervals for the first 2 hours, followed by thirty (30) minutes duration for another 6hours of the observational period designed for the first day of sacrifice. From day 2 to day 14, the research site was visited three times daily, and from day 15 to day 30, the visits were reduced to twice daily for evaluation of the total body score, retrieval of insects present, and recording of the ambient temperature for both carrions. The carrions were secured from scavengers using wire mesh cages. **Results:** These results showed that early postmortem changes were observed at different intervals with different temperatures recorded for both carrions. According to the results of the total body score (TBS), the housed carrion decomposed 3 times faster than the earth surface carrion, even though both carrions were exposed to similar insect colonies at different stages of decomposition. **Conclusion:** Therefore, investigations of clandestine modes of death to predict postmortem interval and the quantification of the rate of decay can be accurately handled once the depositional environment of the carcass is considered.

F2014. Comparative Academic Performances through Dermatoglyphic Analysis of Students in Sagamu Area

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Introduction: Dermatoglyphics is developing its importance in everyday life, and researchers are keen to unveil how Dermatoglyphics can be linked to many aspects in genetical make ups, medicine, anthropometry, and more. Dermatoglyphics is the study of dermal ridge patterns of fingertips, palms, and soles of the feet. It is derived from two Greek words: “derma," meaning skin, and "glyphe," meaning patterns. The academic performance of a student is a product of the student's cognitive ability, such as memory, speech, and auditory capabilities, which are functions of the cerebral cortex of the brain. **Aim of study**: This study is to investigate the relationship between dermatoglyphic patterns and students' learning capabilities in a normal population. **Materials and Methods**: The materials used are ink pads, questionnaires, methylated Spirit, pencil, paper, hand lens. Fifty primary pupils and fifty university students were recruited for the exercise. Their fingerprints were obtained by the Cummins method, and the prints were recorded for analysis apart from the administered questionnaires. **Result**: The analysis showed that ulnar loops occurred mostly among the participants, followed by whorls, then Arches and lastly Radial loops. It was observed that students with radial loop, whorl, and Arch patterns prefer practical methods of learning, while students with ulna loop prefer coming to classes or attending lectures. When we compared the fingerprint pattern with the academic performance of students, we found that students with ulnar loop scored distinction, while students with patterns mostly scored pass marks. **Discussion**: This study revealed that students with ulna loops scored better academically and practiced active learning methods compared to students with other fingerprint patterns. This shows that Dermatoglyphics is related to the learning capacity of an individual.

Keywords: Academic performance, Dermatoglyphics, Fingerprint patterns, Learning

F2015. Disaster Preparedness in Medical Education in a Developing Country

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In developing countries, medical programs in many medical schools are unduly elongated due to the annual impact of disasters. These elongated programs demoralize affected students, leading to diminished returns with psychological impacts on the students who manage to complete the program. The problem here is that some of these graduates become a liability to the public. The above hypothesis is the contention of this presentation, initiated as an exchange to conscript approaches to shield the medical curriculum as a means to organize and manage the stress experienced by medical students, and as learning curves that become applicable in their practice in the future. Disasters are part of life and living and do occur with or without warning. In instances with advent heralds, preparations and planning make the impact less likely to be devastating or fatal. Ultimately, disasters impact humans, the environment, and economic sectors. Should a disaster curtail the smooth progress of the medical curriculum of a medical school/college? Because these students are being trained to manage the havoc in human health resulting from disasters, it is reasonable to argue that the degree of measures to mitigate the impact of disasters during their education will be the extent that determines the rate and degree of economic recovery, profoundly illustrated by the COVID-19 pandemic. In addition to the knowledge of medicine and surgery in diagnostics and management of diseases, medical practice entails professionalism - empathy, compassion, interpersonal skills, trustworthiness, integrity, and acting within the law. These professional attributes are brutalized by truncated and/or elongated training processes and presumably rub off on the conscience of the practice of medical practitioners. What is disaster preparedness? What type of disasters are associated with medical education? What modalities of disaster preparedness are comprehensively adequate in medical education in a developing country? How should medical education leadership deploy disaster preparedness management, awareness, and promotions? These important questions are the focus of this conversation.

Keywords: Disaster preparedness; Medical Education, Anatomy Education, Medical

F2016. Evidence-Based Anatomy: Snippets of a New Frontier of Anatomical Research

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Introduction: Evidence-Based Anatomy (EBA) is the concept of applying evidence-based principles and research methods to the anatomical sciences. Evidence-based research paradigms are well established in the Clinical Sciences and have become the cornerstone of modern medicine. However, for many anatomists and other basic science researchers, it is a relatively new and unexplored concept. **Materials and Methods:** Our aim in this report is to provide an overview of the concept of Evidence-Based Anatomy to anatomists and other researchers so they become familiar with this new evolving subspecialty, and to highlight the relevance in advancing transdisciplinary research that could bring the anatomical sciences to the cutting edge of modern medical research. **Results:** Evidence-Based Anatomy relies on systematic reviews and meta-analysis to synthesize high-quality data from primary anatomical research that explores variations in anatomical structures at either micro- or macroscopic levels, including their association with variables such as age, sex, ancestry/race, laterality, disease pathology, or outcomes. Through Evidence-Based Anatomy techniques, large amounts of data can be pooled from multiple primary sources, hence more accurate inferences can be made about population-average values of morphological variations, as well as estimates of epidemiological anatomical associations. This evidence-based approach to synthesizing anatomical data has the benefit of enhancing our understanding of clinical correlations, which can be distilled to support clinical practice. It also enhances more accurate mapping of knowledge gaps and areas requiring additional laboratory research, among other benefits. **Conclusion:** Evidence-Based Anatomy represents a new frontier of modern anatomy. Researchers and students in the anatomical sciences are encouraged to develop competencies in the techniques in order to expand the space for quality translational research. We suggest that the Nigerian undergraduate and postgraduate anatomy education curricula be redesigned to incorporate Evidence-Based Anatomy.

F2017. Histoarchitecture and Biochemical Effects of Coconut Oil Extract on the Ovaries of Adult Wistar Rats

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Background: Coconut oil (CO) is a byproduct of the coconut, which can be extracted through the heat or cold press method. Infertility in women is a problem in society, and some locals believe that coconut oil could be a solution to it. The ovary is the main female reproductive organ, which functions by housing ova and releasing them at regular intervals. **Methods**: This study investigated the effects of oral administration of coconut oil on the female reproductive organ (ovary) and the changes in the weights of the animals, as obesity can also reduce the chances of a female's fertility. Eighteen (18) female rats were grouped into three groups: A1-A6. Control, Low CO (0.6ml/200g body weight), High CO (1.2ml/200g body weight) doses. **Results:** This study showed no significant change in LH, FSH, GnRH, and progesterone levels at the administration of low and high doses of coconut oil in Wistar rats. There was also found to be a significant decrease ($p<0.05$) in the estradiol level after the administration of low and high doses of coconut oil when compared with the control group. There was a slight increase in the body weight of animals given low-dose coconut oil, while those that were administered with high doses showed a significant increase in their body weight. **Conclusion**: from the results, there is very little effect of coconut oil on the hormonal levels of the female rats, but excessive use of coconut oil could lead to obesity, and that might be implicated as a risk factor for female infertility.

Keywords: coconut oil; ovarian histoarchitecture; sex hormones; Wistar rats.

F2018. Histoarchitecture and Biochemical Effects of Coconut Oil Extract on The Kidneys of Adult Wistar Rats

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Background: The kidneys are among the most vital organs of the human body. They have two important functions, namely: to flush out harmful and toxic waste products and to maintain the balance of water, fluids, minerals, and chemicals, i.e., electrolytes such as sodium, potassium, etc. Malfunction of the kidneys can lead to serious illness or even death. Some people believe that consumption of coconut oil extract (COE), a byproduct of coconut, extracted through the heat or cold press method, can increase or improve the health state of the kidneys (i.e., COE is a non-nephrotoxicant). **Materials and Methods:** This study investigated the effect of coconut oil extract (COE) on the kidneys of Wistar rats and the change in weight of the animals, such as the cases of obesity, a potent risk factor for the development of kidney disease. Thirty-six Norwegian rats were used for the study. The animals were divided based on their body weights into 3 groups (i.e., six animals for males and six animals for females, giving a total of 18 males and 18 females, respectively), namely: Control, Low COE (0.6 ml/200 g body weight) doses, and High COE (1.2 ml/200 g body weight) doses. The administration of COE lasted for 21days. At the end of the administration, the rats were sacrificed. The kidney was harvested for routine histology, and blood was collected via cardiac puncture for biochemical analysis. **Result:** There was no significance in the serum level of all of the biochemical electrolytes in all the experimental rats except creatinine in male rats and urea in female rats, which showed a significant increase ($p > 0.05$) in the low dose when compared to the high dose group. Also, there was no significant change in the histological architecture of the kidney. **Conclusion**: From the results, there is a very small effect of coconut oil extract on the electrolyte levels of both male and female Wistar rats. Also, the excessive use of coconut oil extract could lead to obesity, which has implications for chronic kidney disease.

Keywords: Coconut oil extract, Kidney, Wistar rats, Serum Electrolytes, Urea, Serum Creatinine

F2019. Effect of Coconut Oil Extract on The Liver of Adult Wistar Rats

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Background: Coconut oil (CO) is one type of coconut oil that has recently gained a lot of attention due to various claimed medicinal values, such as antioxidant, antimicrobial, antiviral, anti-hypercholesterol and antithrombotic activities. Moreover, administration of CO is capable of increasing antioxidant enzymes and reducing lipid peroxidation content. Coconut oil has a high percentage of phytochemicals, sometimes also referred to as polyphenols. Phenolic acids are recognized for their antioxidant properties. **Materials and Methods:** Eighteen male and eighteen female Wistar rats with an average weight of 200g were used for the study. The rats were assigned according to their sex and dose administered into six groups, A1-A6, each consisting of six animals. The control group was given 10ml/kg of distilled water, the low dose group was given 500mg/kg of V oil, and the high dose group was given 1000mg/kg of Coconut Oil. All administration was given orally for a period of 21 days. The liver was excised to access biochemical assays. Histology of the liver was obtained using H&E stain. **Results:** The administration of coconut oil protected the structural integrity of the hepatocyte membrane, as evidence from the hepatoprotection provided by the oil, which in turn led to the inhibition of the increase in serum liver enzymes in the treatment groups compared with the control groups of the liver. **Conclusion:** The research carried out showed that Coconut Oil has an antioxidant and hepatoprotective effect on both male and female Wistar rats as a result of the decrease in liver biomarkers.

Keywords: Coconut oil extract; liver histoarchitecture; inhibition; hepatoprotective; serum liver enzymes

F2020. Effect of Coconut Oil Extract on Cardiac Biomarkers, Lipid Profile & Cardiac Histology in Adult Wistar Rats

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Aim: The purpose of this research is to evaluate the effect of oral administration of coconut oil extract in Adult Wister Rat. Research in animals and a few intervention trials suggest that coconut oil increases the good cholesterol (high-density lipoprotein, HDL) and thus reduces the risk of cardiovascular disease. Coconut oil extract was investigated to test for the serum level of cardiac biomarkers, lipid profile, and histomorphology of cardiac muscle. **Materials and Methods**: A total of 36 Wister rats with an average body weight of 200g were randomly selected into six groups, A-F. Group A were Control (Female) and received 2ml distilled water. Group B were Control (Male) and received 2ml distilled water. Group C were Low dose (Female) and received 500mg/kg of coconut oil extract. Group D were Low dose (Male) and received 500mg/kg of coconut oil extract. Group E was high dose (Female) and received 1000mg/kg of coconut oil extract, while Group F was high dose (Male) and received 1000mg/kg of coconut oil extract. **Result**: Blood lipid concentrations were not significantly altered by a dosage of 500mg/kg and 1000mg/kg over a period of 3 weeks in healthy adult rats. The significantly ($p<0.05$) elevated levels of serum and Transaminases (AST & ALT). Total Cholesterol, Creatinine, Triglycerides, HDL, as well as reduced levels of Total protein, Albumin, and LDL-C were normalized upon treatment with Coconut oil extract. The results suggest that Coconut oil extract possesses antioxidant properties with no major side effects, hence it could be considered safe for the management of cardiovascular diseases.

Keywords: Coconut Oil (CO) extract; Antioxidant; Cardiac Biomarkers; Creatine kinase; Wistar Rats.

F3001. Age and Body Stature, Handgrip and Endurance Strength of Elite Weightlifters: Analyses to Boost up 1RM Bench Press

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Aim of the Study: The study aims to characterize the body stature and age, handgrip, and endurance strength of elite male weightlifters, and ascertain the anthropometric features that can boost IRM bench press. **Methods:** Forty-four elite male weightlifters of different weight categories participated in this study. All participants were members of the Ebonyi state team in Nigeria. We assessed their body weight, height, arm span, arm girth, chest girth, hip girth, thigh girth, and handgrip strength, 1RM, time for repetitions (TR), and number of repetitions (NR) of bench press, using the National Strength and Conditioning Association's guidelines. **Results:** 1RM bench press depends on waist and thigh girths, while the speed of bench press was associated with height and arm span of elite weightlifters. 1RM, NR, and TR of bench press depend on age, body weight, and BMI. Consistently, NR of bench press reps increases with age; range 18, 22years, and body weight increases with age; range 28, 32years, while handgrip strength reduces with age; range 38years and above ($p<0.05$). **Conclusion:** Strength and conditioning coaches should enhance the BMI and musculoskeletal structures of the upper and lower body regions, considering the age of the weightlifter. There are factors that could boost strength during the bench press.
Keywords: Biomechanics, BMI; Coach, Sport; Waist girth.

F3002. Any Relationship Between Second to Fourth Digit Ratios and Body Composition: Anthropometric Study of the South-East Nigerian Adults

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Objective: The study examined 2D:4D among young adults with an attempt to explore its relation to body composition in the Igbo population. **Methods**: A total of 400 (200 males and females each) healthy Igbo adults in Alex Ekwueme Federal University, Ndufu Alike, aged 18–35 years, were examined in body characteristics (body composition: waist and hip circumferences, systolic and diastolic blood pressure, waist-to-hip and waist-to-height ratios, as well as body proportion—BMI) and the 2D:4D digit ratio. Statistical analysis used: A two-tailed independent sample t-test was used to analyze the difference in parameters between males and females, and the statistical significance level of $p<0.05$ was considered significant. **Results**: Height, weight, wc, hc, whr, whtr, and BMI were significantly higher among female than male subjects with 2D:4D<1. A positive relation emerged between waist-hip ratio and blood pressure, and 2D:4D, revealing significant fat deposition at the waist-hip region among females than males. 2D:4D was lower in males than in the female 2D:4D ratio (0.94±0.04 and 0.97±0.04). The power of regression models was stronger and more predictable using the left 2D:4D in females than in males, with blood pressure levels and derived indices. In terms of predictive power, the adjusted values (R^2) appeared strongly predictive in all the parameters ($p<0.05$). **Conclusion**: Based on anthropometric characterizations, 2D:4D ratios may present a clearer picture in understanding the body composition in terms of the relationship between lower 2D:4D ratios in males than females among the young Igbo population.

Keywords: androgen levels, body mass index, blood pressure, digit ratios, waist circumference

F3003. Correlative Studies of Dermatoglyphic Patterns Amongst Female Students in Relation to Body Mass Index

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Introduction: Dermatoglyphics is the study of patterns of ridges on the skin of the fingers, palms, toes, and soles. Body mass index is an estimate of total body fat defined as weight (kg) divided by the square of the height (m^2). **Aim of Study:** The study is designed to analyze, examine, and identify dermatoglyphic patterns amongst students of Tai Solarin College of Education, Omu. Fifty (50) female subjects participated in this study. **Materials and Methods:** The weight and height of each subject were obtained using a stadiometer and a weighing balance. The conventional method of using an inkpad was used to collect the fingerprints of the 10 digits, and analysis was done based on the collected data. **Results:** The results of this study showed that most students were within the normal weight category (71%). (16%) fell into the underweight category. (14%) were classified under the overweight category, and only one student fell under the obese class II category (2%). The results also showed that in all pattern types, ulna loops have the highest frequency (53.11%). The frequency of the whorls was (20%). Incidence of double whorl was (13.56%), while arches were (11.11%). Incidence of radial loop was (1.33%), while that of peacock was (0.89%). **Conclusion:** Correlative dermatoglyphics with BMI data show that in underweight subjects, ulna loops occur more frequently. In normal-weight subjects, ulna loops, whorl, and double whorl occur more frequently in the arranging order. In overweight subjects, ulna loop occurs more frequently, while in obese class ii subject, arches occur more frequently. The BMI was found to be associated with dermatoglyphics, lending credence to the fact that dermatoglyphics can be used to determine one's BMI.

Keywords: Dermatoglyphics, Finger Prints, BMI

F3004. *Illimitata accessum* of Digital Dermatoglyphics in the Reformation of Inmates at Sagamu Correctional Centre

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Introduction: Dermatoglyphics is the Science of Anatomy that studies the morphological patterns of the Epidermis on the palmar surfaces of the Fingers. In view of its common embryological Origin with the Brain; Fingerprints had been found to have a strong association with the Cerebral cortex and their cognitive activities. This investigation, therefore, explored the epidermal morphology on the Fingers of the Prison In-mates, exploiting the unlimited access to anatomical tools in the reformation of Human resources in Sagamu Correctional Facility, Ogun State. **Aim:** Anthropometric Data were obtained from the consenting forty Male In-mates at Sagamu Correctional Centre. Institutional Ethical approval was obtained, and all Biometric Data were treated confidentially and subjected to both descriptive and inferential statistics. **Results:** Bookings of the inmates were found to be contradictory to those on the records of the Correctional Centre. Arches and Twinned Loops were found to be significantly higher on the Thumbs of the In-mates while Ulnar Loops were higher on the Thumbs of Age and sex matched Students of the University ($p<0.05$). On the Index Fingers, Radial Loops were observed to be higher on both Hands of the inmates ($p<0.05$) compared to the students. **Conclusion:** Inmates are Human (Capital) Resources that should be developed; they deserve anatomical reformation using the epidermal morphology on their Fingers: Arches indicate reflective learning skills, Twinned Loops, on multitasking and highly intelligent people, Radial Loops are common with critical thinkers, while Ulnar Loops are the affective and practical oriented people. We therefore recommend that the State Governors should not sign death Warrants of condemned inmates on death row but refer them to the National Institute of Anatomy for Anthropological Re-formation.

F3005. Evaluation of Basal Sphenoid Angle for the Diagnosis of Platybasia among Adults of African Descent, using Computed Tomography

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Introduction: The basal sphenoid angle (BSA) is an integral anthropological component of the radiological examination of the cranial floor that is useful in the diagnosis of platybasia. Platybasia is a developmental anomaly of the skull base, occipital bone, and upper cervical vertebrae, associated with changes in the shape of the spheno-occipital region and depth of the posterior cranial fossa. **Aim of the Study**: To determine the prevalence of platybasia, the average basal sphenoid angle, and its relationship with the sphenoid sinus among Nigerian adults, by means of computerized tomography. **Materials and Methods:** Computerized tomography (CT) images of three hundred and twenty-three adult sphenoid sinuses, of individuals with an age range: 18 to 80 years, were retrospectively studied at the Radiology Department, following institutional ethical approval. On sagittal CT slides, the basal sphenoid angle was measured as the angle subtended between two lines on the cranial floor. Platybsia was defined as BSA greater than 143°, which was analyzed in relation to the three measured dimensions (anteroposterior, craniocaudal, and transverse), and the calculated volume of the sphenoid sinus. **Results:** The prevalence of platybasia was 5.26 %, while the average BSA was 124.70 º ± 11.4. There was a statistically significant association between the BSA and the craniocaudal diameter (height) of the sphenoid sinus (p = 0.001). **Conclusion:** Computerized tomography assessment of the skull base may facilitate the identification of asymptomatic patients with bony evidence of platybasia.

Keywords: Platybasia, Basal Angle, CT, African

F3006. Effects of Soil Texture and Clothing Materials on the Decomposition Timeline of Buried *Susscrofa Domestica* as Analogues for Humans

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Introduction: The effects of soil texture and clothing materials on the rate of decomposition of buried carrions are of immense forensic relevance. Decomposition rate varies due to geographic location and depositional environment because many factors are environmentally specific. **Aim:** This study was an attempt to observe the effects of soil texture and clothing material on the rate of decomposition between wrapped and naked buried *sus scrofa domestica.* **Material Methods:** Two adult domestic pigs were used as animal models for this study. This research was carried out in the Department of Anatomy and the forensic anthropology research facility, CRUTECH, Okuku campus. Both pigs were sacrificed by asphyxiation. Immediately death was confirmed, one pig was wrapped with 100% cotton textile material, and the second was left bare naked. Both pigs were buried in a shallow grave of 3 feet [92cm] deep, and both graves were sited 10meters apart. The two carrions were buried for a total period of 30 days. Weekly exhumations were done to examine periodic visible observations, photographs were taken, and regional body scoring was done to ascertain the progress of decomposition rate. **Results:** This result showed limited insect activities underneath. The total body score for the clothed carrion recorded 27, 28, 32, 32, and 32, which is observed to be higher than that of the unclothed carrion of 20, 21, 21, 21, and 21, respectively. Each score is gotten from the weekly exhumation. The soil physicochemical analysis recorded a pH of 5.71, and the exchangeable bases had 0.07, 0.05, 4.66, and 2.99 for K^{+}, Na^{+}, $Ca^{+2,}$ and $Mg^{+2,}$ respectively. **Conclusion:** Therefore, clothing provided a humid environment that increased microbes, leading to a higher rate of decomposition. The soil was salty, which contributed to a slower rate of decay on the naked carrion in direct contact. Thus, this finding can be applied in forensic medico-legal investigations.

Keywords: Decomposition, Timeline, Soil, Naked, Clothed

F3007. Evaluating the Effect of Different Modes of Death on Algor Mortis Progression in a Typical Nigerian Climate

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Introduction: The forensic interest in algor mortis in the estimation of the time of death is based on the premise that the body begins to cool upon death due to the cessation of all cellular activities in the body. Upon death, the body begins to lose its heat to the environment, and the core body temperature begins to drop, but the rate of cooling of the body can be influenced by the ambient temperature and the perimortem core body temperature. **Aim:** This study is aimed at evaluating the progression of Algor Mortis in porcine models based on different modes of death. **Methodology:** Five pigs were killed by stabbing, strangulation, poisoning, stunning, and drowning. The body weight, core body temperature (obtained via the rectum), and the ambient temperature were recorded for each pig before euthanasia of the pigs. After death was confirmed, the Perimortem and post-mortem core body temperature and ambient temperature for each pig were routinely recorded at 10mins interval for the first hour, 30mins interval for the next two hours, and at an hour interval for five hours. This was done to record the progression of algor mortis for the first eight hours after death. **Result:** The result showed that the different modes of death lead to variations in the Perimortem core body temperature, which affected the rate of progression of algor mortis. **Conclusion:** This will be relevant in the field of Forensic science and Taphonomy in the area of estimating post-mortem interval using Algor mortis.

Keywords: algor mortis, core body temperature, Ambient Temperature, Forensic Taphonomy

F3008. Oil extract of *Nigella Sativa* Prevents Valproic acid-induced Craniosynostosis

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Introduction: Craniosynostosis is a congenital defect in which the bones in a neonate's skull fuse too early in life, which happens before the brain is fully developed. Premature fusion of sutures can lead to compensatory growth and remodeling along other sutures, resulting in severe deformities in the cranial vault, facial asymmetry, hydrocephalus, and a rise in intracranial pressure. Visual and cognitive impairment, deafness, and airway compromise can also develop. **Aim:** This study was undertaken to test the effects of *Nigella Sativa* (NS) oil extract on Valproic acid (VPA)-induced Craniosynostosis. **Material and Methods:** Pregnant ICR mice received 100% oil extract of NS oil on gestation day (GD) 8 to 110, by gastric intubation at 0 (vehicle), 0.1, 0.2, 0.3 ml. One hour later, animals received a teratogenic dose of VPA (600 mg/kg) or vehicle by gastric intubation. One-week-old offspring were euthanized, and the bones of the skull were stained and examined with a stereomicroscope. **Results:** Twenty-eight percent of fetuses exposed to VPA had Craniosynostosis. Pretreatment with NS oil extract at 0.2 and 0.3 ml significantly reduced the rate of VPA-induced Craniosynostosis to 15.9% and 13.7%, respectively. **Conclusion:** The findings of this study show that NS oil extract plays a protective role in Valproic acid -induced Craniosynostosis in mouse offspring delivered by Dams treated with VPA during pregnancy.

Keywords: Oil extract, *Nigella Sativa,* Valproic acid, Craniosynostosis

F3009. Dermatoglyphics Appraisal of 2D-4D Ratio in Prostate Cancer Patient

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Introduction: Dermatoglyphics is the scientific study of intricate patterns and fingerprints from fingers. "Derma" means skin, and "glyphic" means carvings, and it applies to the division of anatomy that embraces their study. The 2D-4D ratio is considered a putative marker for prenatal hormone exposure. Prostate cancer is the development of cancer in the prostate. **Aim**: The study aims to determine the digital length (2D-4D) ratio of prostate cancer subjects in comparison to non-prostate cancer subjects. **Method:** The research work was carried out among 37 males who were aged 40 years and above. The subjects were grouped into two: prostate cancer patients (23) as cases and non-prostate cancer patients (14) as controls. Hence, 2D:4D digital ratio figures were collected conventionally (measured from the middle of the proximal digital crease to the tip of the finger) and anatomically (measured from the metacarpophalangeal joint to the tip of the finger) using a digital Vernier caliper to the nearest 0.01cm. **Results:** The conventional method in the right and left hands of Cases and Controls showed (0.939±0.178, 0.987±0.126) (0.991±0.55, 0.98±0.06) respectively, while the anatomical method in the right and left hands of Cases and Controls showed (0.980±0.10, 0.970±0.57) (0.993±0.83, 0.971±0.89). 2D:4D ratio showed no statistical significance in prostate cancer patients, $p>0.05$. **Conclusion:** Sex hormone environment during early development is associated with cancer risk later in life. (i.e., low 2D: 4D ratio) are associated with prostate cancer. Further studies exploring the association of the 2D: 4D ratio in cancer prognosis and treatment response are encouraged.

Keywords: Prostate Cancer, 2D:4D ratio, Conventional methods

F3010. Appraisal of Fingerprints and DAT Angles in Breast Cancer Patients

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Introduction: Dermatoglyphics is a branch of Science that studies the patterns and configurations of skin ridges that are present on the fingers, palms, toes, and the soles of the feet, and are unique for each human identification and diagnosis of conditions. Breast cancer ranks first among all cancers diagnosed in women, and it is also the leading cause of cancer mortality in women in both developing and developed regions. **Aim of Study:** The aim of this study was to carry out a dermatoglyphic investigation among Breast cancer patients in Olabisi Onabanjo University Teaching Hospital, Ogun State, Southwest, Nigeria. **Materials and methods**: 50 female patients with breast cancer (Breast cancer with ulceration, 25, and Breast Cancer without Ulceration, 25) were compared with 50 control group of individuals with no history of Breast cancer. Age range from 40-71 years. Digital dermatoglyphic patterns were obtained from the patients and control group using the Cummins and Mildo Ink Pad methods, and fingerprints were read using a magnifying lens (X40). The DAT angle was measured using a protractor. Data were analyzed statistically. **Results:** Ulnar loops were present in all ten digits except the first and fourth digits of both hands, respectively, in Breast cancer patients with ulceration. While present in all ten except in the left first and third digits, respectively, in Breast cancer patients without ulceration. Patients with Breast Cancer with Ulceration showed mean DAT angles (66.64±6.92 and 67.91±7.31) for the right and left hands, respectively, while patients with Breast Cancer without Ulceration showed mean DAT angles (69.54±9.69 and 67.79±13.78). The control group DAT angles were (62.78 ± 8.64 and 61.86 ± 8.15). These values were statistically significant ($P<0.05$). **Conclusion:** Dermatoglyphics can serve as a non-invasive, anatomical marker and a diagnostic tool to determine individuals with breast cancer.

Keywords: Ulnar loops, DAT angles, Breast cancer.

F3011. Appraisal of Umbilical Height and Body Height of Basic Medical Sciences Students of Olabisi Onabanjo University for the 2019/2020 Session

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Introduction: Body and umbilical height are two distinct quantitative data used for anthropological classification and comparisons. It is an important surface landmark on the anterior abdominal wall in addition to its aesthetic importance. **Aim of study:** The purpose of this study was to investigate the Yoruba folklore, which states that "The umbilical height is equivalent to half body height". **Materials and Methods**: Two hundred and twenty students were purposively selected 3in Faculty of Basic Medical Sciences, Olabisi Onabanjo University, Sagamu, Ogun State, Nigeria. Informed consent and ethical approval were obtained from the students and the faculty ethical committee, respectively. Measurements obtained include umbilical height (UH), body height (BH), body weight (BW), half body height (HBH), umbilical height/body height ratio (UH/BH), body mass index (BMI), and Demographic data such as age, sex, culture, and geopolitical zones. **Results**: The mean UH and BH values for the whole population were 1.0957m±0.07711 and 1.6850m±0.0934. While the mean values for HBH and UH/BH were 0.843m±0.0467m and 0.6502m±0.02697. These values were obtained for students with normal BMI, underweight, overweight, and obese students in the study. **Discussion:** The mean umbilical height was not equal to the mean half-body height, and the mean umbilical height/body height ratio was greater than 0.5 in all categories. Furthermore, the paired correlation of the umbilical height/body height ratio with obesity was significant (P value < 0.001). However, the strength of association of all the demographic parameters taken was weak and insignificant, with a P value > 0.05. The umbilical height is not equal to half body height regardless of the BMI, age, sex, tribe, and geopolitical zones.

Key-words: Umbilical height, Body height, Body mass index, Demographic data.

F3012. Appraisal of the Deltoid Tuberosity of the Humerus Bone at the Dissection Laboratory of the Anatomy Department in Olabisi Onabanjo University

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Introduction: The humerus is the long bone in the arm that runs from the shoulder to the elbow. It connects the scapula and the two bones of the lower arm. The deltoid tuberosity is a rough, triangular area on the anterolateral surface of the middle of the humerus to which the deltoid muscle attaches. This area is vital to the diagnosis of an inflamed deltoid muscle tendon and the origin of its radiating pain. **Aim of study:** This study was designed to describe the anatomic insertion point of the deltoid muscle to the Deltoid tubercle of the humerus for proper diagnosis of tendon tendinitis. **Methods:** Fifty dried humerus bones (25 right and 25 left) from the gross anatomy laboratory of Olabisi Onabanjo University, Sagamu, Ogun State, Nigeria, were used for the study. Radiographs of these bones were taken at the radiology department of Olabisi Onabanjo University teaching hospital, Sagamu, Ogun State, Nigeria. Measurements include: Humeral height and Deltoid tuberosity height. The apex of the deltoid tuberosity was also pinned. **Results:** For the left hand, the mean humeral height was 320.423±21.1414mm, deltoid tuberosity height 152.9928±17.9597mm, and deltoid tuberosity/humeral height ratio 0.4767±0.375. While for the right hand, the mean humeral height was 334.086±21.68mm, deltoid tuberosity height 157.848±14.785mm, and deltoid tuberosity/humeral height ratio 0.4720±0243.p value < 0.5. **Discussion:** Deltoid tuberosities were more prominent at the middle-third, close to the middle of both left and right humerus bones. Therefore, pain and tenderness of deltoid tendinitis may be located above the midpoint of the humerus.

Key words: Deltoid tuberosity, Humerus, Deltoid muscle tendon, Tendon tendinitis.

F3013. Dermatoglyphics Study of Prostate Cancer Patients Using Ridge Count and ATD Angles

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Introduction: Dermatoglyphics study can help in diagnosing hereditary diseases in patients. Prostate cancer is the most commonly diagnosed male cancer and occurs in older age, usually above 50years. **Aim:** The aim of this study is to determine ridge count and ATD angles in prostate cancer patients. **Materials and Methods:** A total of 37 consenting patients from the urology clinic, ages 40 upwards, 23 prostate cancer patients, and fourteen 14 non-prostate cancer patients were used. Palmar print was collected using the ink and paper method, and the palmar print ridge counts were checked in both hands. **Results:** Prostate cancer patients had more ridge counts for AB in both hands, right BC, and CD than those without prostate cancer. The mean±SD of ridge counts of right and left hands for Prostate cancer patients and non-Prostate cancer patients are as follows: AB (37.09±7.173, 37.013±7.683), BC (28.78±7.292; 28.78±7.292), CD (31.43±9.995; 33.30±6.643), AB (33.57±5.854, 34.07±6.170), BC(28.29±3.832; 29.50±8.951), and CD (29.64±9.094; 34.50±7.743), respectively. ATD angles were tested for. The mean±SD of ATD angles in cases was noticed in the left hand to be (50.18±14.82), and in the control was (43.57±7.31), while in the right hands, the mean±SD of ATD angles was (44.57±6.642) in cases and (43.82±12.576) in control. It was then noticed that ATD angles were wider in prostate cancer patients than in non-prostate cancer patients. **Conclusion:** People with high ridge counts need early tests and diagnoses, and also must receive better treatment options, as this research proved that patients with high ridge counts have a high tendency of having prostate cancer or already have it.

Keywords: Prostate Cancer, Ridge Counts, ATD angles.

F3014. Appraisal of Fingerprints and DAT Angles in Breast Cancer Patients

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Introduction: Dermatoglyphics is a branch of Science that studies the patterns and configurations of skin ridges that are present on the fingers, palms, toes, and soles of the feet and are unique for each human identification and diagnosis of conditions. Breast cancer ranks first among all cancers diagnosed in women, and it is also the leading cause of cancer mortality in women in both developing and developed regions. **Aim:** The aim of this study was to carry out a dermatoglyphic investigation among Breast cancer patients in Olabisi Onabanjo University Teaching Hospital, Ogun State, Southwest, Nigeria. **Materials and Methods**: 50 female patients with breast cancer (Breast cancer with ulceration, 25, and Breast Cancer without Ulceration, 25) were compared with 50 control group of individuals with no history of Breast cancer. Age range from 40-71 years. Digital dermatoglyphic patterns were obtained from the patients and control group using the Cummins and Mildo Ink Pad methods, and fingerprints were read using a magnifying lens (X40). The DAT angle was measured using a protractor. Data were analyzed statistically. **Results:** Ulnar loops were present in all ten digits except the first and fourth digits of both hands, respectively, in Breast cancer patients with ulceration. While present in all ten except in the left first and third digits, respectively, in Breast cancer patients without ulceration. Patients with Breast Cancer with Ulceration showed mean DAT angles (66.64±6.92 and 67.91±7.31) for the right and left hands, respectively, while patients with Breast Cancer without Ulceration showed mean DAT angles (69.54±9.69 and 67.79±13.78). The control group DAT angles were (62.78 ± 8.64 and 61.86 ± 8.15). These values were statistically significant ($P<0.05$). **Conclusion:** Dermatoglyphics can serve as a non-invasive, anatomical marker and a diagnostic tool to determine individuals with breast cancer.

Keywords: Ulnar loops, DAT angles, Breast cancer.

F3015. Induced Pluripotent Stem Cells for Correction of Blood Genetic Disorders: Gene Therapy Perspective

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Introduction: Induced pluripotent stem (iPS) cells generated from the somatic cells in combination with gene therapy could provide unlimited potential for autologous correction of blood-related genetic conditions such as Leukemia, Sickle cell anemia, and Hemophilia, particularly for disease conditions that do not have Human Leukocyte Antigen (HLA) compatible donors. **Aims**: In this study, the assessment of the persistence of transgene expression following hematopoietic stem cells derived from Lentivirus transduced iPS cells was carried out. Here, we mimic the early embryogenesis and hematopoiesis in vivo, the spatial organization of the pluripotent cells by facilitating cell-to-cell interactions. **Materials and Methods:** Mouse induced pluripotent stem cells (iPS) transduced with Lentivirus (LV) carrying Green Fluorescent Protein (GFP) reporter gene have been employed. Day 3 embryoid bodies (EBs) were generated from LV-transduced iPS cells. The EBs were briefly dissociated into single cells in suspension, and the cells were further grown in methylcellulose culture medium supplemented with specific hematopoietic cytokines. At day 8 post-directed differentiation of the cells, the percentage of $CD34^+$ and $CD45^+$ positive cells were evaluated using FACS Canto flow cytometry (BD Bioscience, USA), and the results were analyzed using BD FACSDiva version 8.0.1 software. HSC-colony-like cells were observed under a fluorescence microscope (Olympus IX51, Olympus, USA). **Results and Discussions:** Successful appearance of Brachyury expressing cells following Immunocytochemistry (ICC) indicated the presence of mesodermal cells and possible emergence of blast colony-forming cells, which appeared as a small, tight, bright red, diffused cluster of refractile erythroblasts–like cells. Flow cytometry results showed that LV transduced iPS cells derived HSCs presented considerable HSC surface markers ($CD34^+$) and matured blood ($CD45^+$) cells of about 7.6% and 24.6% respectively, while maintaining the expression of GFP of about 68.8%. Our findings demonstrated persistent and stable, yet modest transgene expression upon directed differentiation of LV transduced iPS cells into HSCs. The knowledge generated from this study may be beneficial for autologous correction of blood genetic conditions for the curative purpose of many hematological genetic-related disorders.

Key Words: iPS Cells, Hematopoietic Stem Cells, Blood, Gene Therapy

F3016. Relationship Between Facial Asymmetry and Measures of Health

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Background: A large volume of literature indicates a relationship between measures of health and facial asymmetry in the *WEIRD* (Western, Educated, Industrialized, Rich, and Developed) population, with equivocal results. This study aimed at identifying the relationship between measures of health and facial asymmetry (FAsym) in the non-*WEIRD* Hausa participants from a remarkably challenging environment. **Materials and Methods:** Sample size was 427 participants (215M, 212F) selected randomly with consent & ethical approval. Biometric, personal data, and history of chronic and immunizable diseases were collected from a demographic questionnaire. The 3D morphological data were collected using EXAScan laser surface scanner (www.handyscan3d.com), and FAsym was extracted as a whole. FAsym was regressed against facial size (WFRES) & asymmetry around the eye (EYRES) using Geomagic software version 12. For each condition, *a two-sample t-test* was performed to determine the difference in WFRES & EYERES between those who suffered from a specific condition and those who did not. *ANOVA* was performed to compare mean WFRES and EYERES values between groups. Linear regression analyses between facial asymmetry and measures of health in males and females were also conducted. **Results**: indicated that none of the health measures showed any significant linear relationship with WFRES or EYERES ($P>0.05$), except for diastolic blood pressure with EYERES ($P<0.05$). Analysis of covariance (ANCOVA) on WFRES, EYERES, BMI, SYSTBP, DIASTBP & sex as covariate was conducted. Model optimization revealed a statistically significant best model (F-statistic: 9.783, R^2 0.028, p-value: 0.0018), with BMI & DIASTBP predicting WFRES in both sexes. Similarly, DIASTBP only predicts EYERES in both sexes (F-statistic: 7.784, R^2 0.031, p-value: 0.0005). **Conclusion:** Body mass index and diastolic blood pressure are the key players in predicting facial asymmetry.

Keywords: Influence, Facial asymmetry, Health, Nigeria

F3017. Investigating the Taphonomy of Hanged and Surface Carrion in a Dry Savanna Zone

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Introduction: Forensic taphonomy is the use of processes associated with cadaver decomposition in the investigation of crime. Understanding taphonomic processes facilitates the reconstruction of events that occur between the deposition of the remains and their discovery, reconstructing ante mortem & perimortem events and estimation of the post-mortem interval (PMI). **Aim:** The aim of this study is to analyze the differences in the decomposition patterns between hung sus scrofa and those placed on the soil surface. **Materials and Methods:** Two six-month-old pigs were used for this study. Pig one was hung, and pig two was strangled and placed on the surface. Observations comprised of visits to the site three times daily and photographing of the process on each visit for the entire duration of the research, which lasted thirty days. Daily ambient temperature readings were recorded & were used to calculate the accumulated degree days (ADD); total body score (TBS) was also recorded to quantify decomposition rate using already established scales. **Results:** Results show that the pattern of decomposition in hanging bodies differs from that of bodies that decompose on the surface. The carrion placed on the surface followed the laid-down decomposition timeline, which is fresh-bloat-active decay-advance decay and dry/skeletonization. The hung pig did not undergo the successive stages of decomposition. This research has shown that the mode of death significantly affects decomposition rate and that carrion on the surface in a savannah zone will attain skeletization at 431 ADD, while the hung carrion showed visible signs of mummification at a similar ADD. **Conclusion:** The data from this study contribute to our knowledge on the taphonomy of hanging bodies and how different factors influence this process. This will aid forensic anthropologists and law enforcement in differentiating homicides from suicides and will be vital in the estimation of the post-mortem interval.

Keywords: Taphonomy, Post-mortem Interval, Total Body Score, Accumulated Degree Days

S1001: Memory, Oxidative, and Neurogenic Protein Deficits of Frontal Cortex following Chlorpyrifos/Dichlorvos Exposure in Rats

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The use of xenobiotics to boost agricultural productivity has led to toxic chemical exposure, including organophosphates, causing adverse health outcomes, including behavioral and neuronal impairments. Organophosphates (OPs) are a group of pesticides that includes some of the most toxic chemicals used in agriculture. OPs are especially efficacious in disabling insects via inhibition of Acetylcholinesterase (AChE), leading to the upsurge of acetylcholine (ACh) in the body. This study aimed to evaluate the memory indices, possible oxidative and cholinesterase outcomes on the frontal cortices of rats exposed to organophosphates, using the two commonly used OP chemicals in Nigeria – chlorpyrifos and dichlorvos. Thirty-two Wistar rats were grouped into four. Group I received 1ml/kg of Normal saline, the second, third, and fourth groups received 8.8 mg/kg dichlorvos, 14.9 mg/kg chlorpyrifos, and 8.8 mg/kg dichlorvos plus 14.9mg/kg chlorpyrifos, respectively. They had three training trials in the Y Maze paradigm, then a spatial working memory assessment. They were exposed daily for 14 days, then euthanized 24hours following exposure, and tissues excised for analysis. A marked reduction ($p < 0.05$) in morphological parameters, Acetylcholinesterase (AChE) activity, spatial memory indices, and proliferative neuron marker (Ki67) was observed. There was also an increase in oxidative stress markers in the frontal cortices of the organophosphates exposed rats. In addition, this study shows that exposure to more than one type of OP chemical could have more deleterious effects on the brain, as evidenced by marked AChE inhibition, higher NO and ROS, reduced Ki67 immunoreactive cells, and poorer spatial memory outcomes in the rats concurrently exposed to CPF and DDVP. The findings demonstrated neurotoxic effects of organophosphates in rats.

Keywords: Organophosphates, Oxidative stress, Acetylcholinesterase, Spatial memory

S1002

Biochemical Alterations in the Brain following Exposure to Stress and the Protective Activity of *Cannabis Sativa* in Rats

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Background: Stress continues to be a rising global health concern, which is capable of triggering neurodegenerative diseases. Available treatment options focus more on alleviation of specific symptoms rather than control/delay of the progression of neurodegenerative diseases triggered by stress. *Cannabis sativa* L. (*C. Sativa*) at a moderate dose is widely regarded as a potent psychoactive, medicinal plant with antioxidative properties. **Aim**: This study assessed the neuroprotective effect of hydroethanolic extract of *C. sativa* (HCS) on stress induced biochemical changes in the brain of Wistar rats. Twenty-Five (25) Wistar rats were used in the present study and were divided into 5 groups (n=5). Group I (H_20 1 ml/kg); group II (2 hours of restraint stress); group III (Diazepam (5 mg/kg) + Stress; group IV (250 mg/kg of *C. sativa* + Stress); and group V (750 mg/kg of *C. sativa* + Stress). Treatment was via the oral route for a period of 21 days. **Materials and Methods**: Neuroprotective effect of HCS was evaluated using biochemical and neurochemical analysis of oxidative stress biomarkers (MDA, SOD, CAT, and GPx) and endogenous enzyme (AchE) activity, respectively, using brain homogenate. **Results**: Results revealed alterations in the concentration levels of oxidative stress parameters in stress-exposed groups. HCS significantly ($P<0.05$) ameliorated stress-induced alterations of biochemical and neurochemical concentrations in a dose-dependent manner. **Conclusion**: Findings from this study suggest the efficacy of low-dose *C. sativa* in ameliorating stress induced biochemical and neurochemical alterations in the brain and could be a potential candidate for application in the management and treatment of stress induced neurodegeneration.

Keywords: Antioxidant, Neurodegeneration, Oxidative stress, and Psychoactive

S1003

Sex Discrimination Potential of Radiographic Measurements of the Right Foot of Medical Students at Ahmadu Bello University, Zaria

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Introduction: Subjecting evidence-based remains to forensic analysis enables the forensic anthropologist to ascertain their species, discriminate their sex, age at time of death, among other profiles, to create a correct biological profile for the sample with a high level of accuracy. **Aims of the study:** To determine sex among students of the College of Medical Sciences, Ahmadu Bello University, Zaria (ABU-Zaria) using radiographic measurement of the right foot. **Material and Methods:** The study was carried out among 175 (99 male and 76 female) randomly selected Medical students in ABU-Zaria aged 16-26 years with no evidence of congenital foot anomalies or factors affecting balance and gait. Digital X-ray of the right foot was done to measure the length of the first and second metatarsal, Antero-posterior length of talus (APL-T), demarking point of calcaneus, truncated foot length, and full foot length (FFL) were all measured on the right foot radiographs using K-Pac workstation software version 1.5 to measure the dimensions from the images. The sex discrimination potential of the measured variables was evaluated using stepwise discriminant analysis, and prediction analysis was determined. **Result:** Only APL-T and FFL significantly discriminated between male and female using the Lambda equation, which indicates that a value equal to or greater than -0.273 indicates a male, whereas a value less than -0.273 indicates a female among medical students of ABU-Zaria. **Conclusion:** Sex can be correctly classified within the study population using the stipulated discriminant potential value. The findings from the present study could be used in forensic human identification and product designs.

Keywords: Sex determination, Foot measurement, Radiographic measurement

S1004

n-Butanol Fraction of *Phoenix dactylifera L*. improved Gait and Motor Coordination in Rotenone-Exposed Wistar Rats

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Introduction: Rotenone is an organic pesticide and inhibitor of mitochondrial complex I activity, triggering the production of reactive oxygen species and mitochondrial dysfunction, and has been implicated in motor coordination deficits and other neurological conditions such as Parkinson's disease. *Phoenix dactylifera* (date palm) is of vast medicinal and nutritional value. **Aim**: In this study, the effect of the *n*-butanol fraction of *Phoenix dactylifera L.* was assessed on rotenone-induced motor deficit in Wistar rats. **Materials and Methods:** Thirty-five rats were divided into five groups (I - V; n=7). Group I served as control was administered distilled water (1 ml/kg, p.o), group II received Olive Oil (1ml/kg vehicle, i.p) Group III received rotenone (3 mg/kg, i.p) only; groups IV and V were administered Rotenone (3 mg/kg, i.p) followed by *n*-butanol fraction of *Phoenix dactylifera* (500 mg/kg and 1000 mg/kg respectively, p.o). The administration lasted for 21 days. The effect of the *n*-butanol fraction of *Phoenix dactylifera* was assessed by neurobehavioural tests using footprint analysis for gait disorder and beam walk test for motor coordination and balance. **Results:** Results revealed significant ($p<0.05$) alterations in the footprint parameters and beam walk performance latency time in the rotenone-treated group. However, *the n*-butanol fraction of *Phoenix dactylifera* remarkably ameliorated rotenone-induced motor deficits through improved gait, motor coordination, and balance. **Conclusion:** Findings from this study suggest that *Phoenix dactylifera L*. could be a potential candidate in the management and treatment of rotenone-induced motor deficit and other movement-related disorders in rats.

Keywords: Beam Walk, Footprint, Gait, Motor Deficit

S1005

Hypoglycemic Effect and Histoarchitectural Testicular Changes in Adult Male Hyperglycemic Wistar Rats treated with Methanolic Extract of *Anchomanes Difformis*

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Introduction: The use of the *Anchomanes difformis* plant and other plants for medicine is an age-old practice; the plant has been reported to possess anti-diabetic functions among others. **Aim of the study**: This research was designed to assess changes in blood glucose, testicular weight, and microanatomical testicular structure in Wistar rats treated with the methanolic extract of *Anchomanes difformis*. **Materials and Methods:** Twenty adult Wistar rats were randomly assigned into four groups, A – D, of five animals each. Group A served as the normal control and received 3 mg/kg body weight of normal saline daily for six weeks. Groups B & C were induced with 60mg/Kg body weight (bw) of Streptozotocin, and treated with 3 mg/kg body weight of normal saline and 1650mg/Kg of methanolic leaf extract of *Anchomanes difformis,* respectively. Group D (normoglycemic group) was treated with 1650mg/Kg of the extract. The animals were sacrificed after six weeks via cervical dislocation. The testes were extracted, weighed, and fixed for histological studies using H&E and Masson Trichrome. **Results:** Group C rats revealed good glycemic control and a restorative testicular histoarchitecture when compared to groups B, D, and A, in which normal histological features were preserved. **Conclusion**: These results suggest that the methanolic extract of *Anchomanes difformis* exhibits both anti-hyperglycemic and ameliorative properties on the testes of hyperglycemic Wistar rats.

Keywords: *Anchomanes difformis,* hyperglycemic, histoarchitecture, micro-anatomical, Wistar rats

S1006

Microscopic Assessment of Stomach and Duodenum following Chronic Alcohol Administration in Wistar Rats

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Introduction: Several studies have reported risk factors associated with alcoholism. While there is no exact formula to depict a person's drinking habits, data have shown that alcohol abuse is influenced by a variety of factors. Among the organ-systems that mediate alcohol's effect on the body and health, the gastrointestinal tract (GIT) plays a particularly important part. **Aim**: This study assessed microscopic changes in the stomach and duodenum of Wistar rats following chronic alcohol administration. **Materials and Methods**: Twenty Wistar rats were obtained and categorized into four groups (Groups A–D, n=5). Group A (control) was administered distilled water (1 ml/kg, p.o), groups B, C, and D were treated with alcohol (0.12 g/kg, 0.16 g/kg, and 0.24 g/kg, p.o respectively). The study lasted for 75 days. The stomach and duodenum were processed for light microscopic examination using H&E and PAS (for glycogen moiety) stains. Histomorphological assessment of the dimensions (length and width) of duodenal villi was conducted using a computer imaging software (Image J, NIH, US), and means were compared statistically. **Results**: Relative to the control, alcohol treated groups showed distortions in the histological and histochemical features of the stomach and duodenum that manifested as diffused hyperplasia and loss of specialized cells in gastric glands, depleted parietal and mucus mass cells, and superficial erosion of columnar epithelium. Depletion of glycogen moiety, as reduced PAS-reactivity was observed, especially with doses of 0.16 g/kg and 0.24 g/kg alcohol. Villi dimensions revealed remarkable ($p<0.05$) distortions in the alcohol treated groups, as reduced length and inflamed villi with increased width. **Conclusion**: Chronic alcohol consumption has deleterious effects on the microscopic structures of the GIT in rats in a dose-dependent manner. Thus, alcohol consumption could trigger alterations in the normal physiological and biochemical processes of the GIT and general health of the consumers.

Keywords: Alcoholism, Gastrointestinal tract, Glycogen moiety, Histomorphology, Villi

S1007

Expression Profile of *COL6A and COL8A* in the Skeletal Muscle of the TS1CJE Mouse Model of Down Syndrome

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Introduction: Down syndrome (DS) is a genetic abnormality due to triplication of human chromosome 21 (Hsa21). Besides the intellectual disability, motor dysfunction, and systems anomalies, mitochondrial dysfunction has also been characterized in individuals with DS. The Ts1Cje, a mouse model for DS, which has a partial trisomy (*Mmu16)* homologous to Hsa21, is widely used for DS research and is well reported to exhibit various phenotypes seen in DS individuals. **Aim of the study:** In this study, the expression profile of *COL6 and COL8* in the quadriceps and triceps of Ts1Cje mice was assessed. **Materials and Methods:** Approval for the study was obtained from the Institutional Animal Care and Use Committee, Universiti Putra Malaysia (Ref.: UPM/FPSK/PADS/BR-UUH/00494). Quadriceps and triceps were harvested from the Ts1Cje (C57BL/6) postnatal day 60-70 mice and corresponding wild-type littermates. RNA extracted from these tissues was subjected to quantitative expression profiling of *COL6A1, COL6A2, and COL8A2*. The real-time quantitative PCR (RT-qPCR) method was used for the profiling. **Results:** The result showed a significant reduction in the expression level of *COL6A2* in both quadriceps (P=0.005) and triceps (P=0.005) of Ts1Cje mice compared to the wild type. The expression level of *COL8A2* was found to be significantly reduced in the quadriceps (P=0.003) of Ts1Cje mice than in wild-type mice. However, no significant difference was observed in the expression level of *COL6A1* in both triceps and quadriceps between the two genotypes. **Conclusions:** The tendon and the extracellular matrix of skeletal muscle are collagen-rich tissues that are important for muscle function, especially in relation to force transmission. Ts1Cje mice have demonstrated muscle defects related to hypotonia, and a reduction in the expression level of *COL6A* and *COL8A2* may also affect the muscle function in this model of DS. Our findings showed reduced expression of *COL6A1 and COL8A2* in the skeletal muscle of Ts1Cje mice, signifying possible motor functional alteration in this model of DS.

Keywords: Down syndrome, gene expression, Collagen genes, skeletal muscle.

S1008

Using SAAAB, DAABS, and SAAAB Polyherbal Formulations to treat Type II Diabetes Mellitus in Abuja, Nigeria

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Diabetes mellitus (DM), commonly known as just diabetes, is a group of metabolic disorders characterized by a high blood sugar level over a prolonged period of time. Symptoms often include frequent urination, increased thirst, and increased appetite. If left untreated, diabetes can cause many health complications. Acute complications can include diabetic ketoacidosis, hyperosmolar hyperglycemic state, or death. Serious long-term complications include cardiovascular disease, stroke, chronic kidney disease, foot ulcers, damage to the nerves, damage to the eyes, and cognitive impairment. SAAAB, DAABS AND SAAAB are African Polyherbal formulations manufactured by Halamin herbal products Ltd, Abuja, Nigeria. An observational study was carried out using these products on a diabetic patient and a plausible on the control. The results show a tremendous reduction in the sugar level as compared with the group that was on the placebo. The use of African polyherbal formulation should be encouraged to help reduce the harm caused by the importation of fake drugs in the treatment of metabolic diseases like Diabetes Mellitus.

S1009

Remedial Effects of *Nigella sativa Oil* on Hippocampal Phenotypes of Socially Isolated Balb/C Mice Models of Schizophrenia

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Introduction: Schizophrenia is a severe psychiatric illness that causes a person to interpret reality bizarrely. It highly implicates the hippocampus, which functions in learning and memory. Social Isolation is a neurodevelopmental model of Schizophrenia that leads to neurobiological alterations. Nigella *sativa* Oil (NSO) has been considered one of the most treasured nutrient-rich herbs in history, and scientific studies are in progress to validate the traditionally claimed uses. **Aim**: This study aimed at exploring the remedial effect *Nigella sativa* has on schizophrenic symptoms in the mouse models of schizophrenia using histological, neurobehavioral, and neurochemical methods. **Materials and methods**: Sixty mice divided into 6 groups were used for this research. The groups, namely, SIR (Socially Isolated for 8 weeks in individualized cages devoid of visual cues while being given normal chow), and Control (Socially reared and given normal chow). SIR-NS (Socially isolated for 8weeks and treated afterwards with NSO for 10days). SIR-NSC (Socially isolated and concurrently given NSO for 8 weeks), NS-SIR (The dams were administered NSO 10 days before mating, their pups then isolated for 8 weeks after they were weaned), NS group (Socially reared for 8 weeks while being given NSO during that period). **Result**: Low hippocampal glutamate and GABA levels of the SIR mice were up-regulated in the NSO-treated groups. There was improvement in the novel object recognition by the treated groups, which indicated improved memory. Higher neuronal density was recorded in the SIR mice and pretreated mice (NS-SIR) than in the post-treated mice (SIR-NS). **Discussion**: The results corroborated previous implications of the hippocampus in schizophrenic pathology and proved the role of NSO in the treatment and prevention of schizophrenic mice hippocampal deficits.

Keyword: *Nigella sativa*, Social isolation rearing, BALB/c, Schizophrenia, Hippocampus

S1010

Prophylactic Effect of *Nigella Sativa* Oil in Phenol-induced Cognitive Dysfunction in Mice

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Introduction: Essential tremor is a severe motor disorder characterized by uncontrollable shaking of different body parts and cognitive deficits. Phenol is a neurotoxic compound known for tremorgenicity in mice. *Nigella sativa is* a medicinal plant with wide-ranging ameliorative potentials. **Aim of study:** The study aims to investigate the prophylactic effect of *Nigella sativa* oil (NSO) on cognitive dysfunctions in tremor-induced mice. **Materials and Methods**: Seventy-five albino mice were grouped into CTRL (administered normal saline), PNSC (administered phenol and *Nigella sativa oil concurrently)*, NSP (pretreated with *Nigella sativa oil* followed administered with phenol), NS (administered *Nigella sativa oil* only), and P (administered phenol only). Administration was carried out orally and subcutaneously for 16 days. Anxiety and recognition memory were assayed with the Elevated Plus Maze and Novel Object Recognition tests, respectively. Amygdalic phenotypes were analyzed histologically, neurochemically, and neurobehaviorally following sacrifice. **Results**: The P mice expressed tremor, low recognition memory, and reduced locomotion. The PNSC mice also expressed tremor, which abated much earlier than that of the P mice. They also had higher recognition memory than the P and NSP mice. NS mice exhibited increased locomotory activities and recorded the highest recognition memory of all the experimental groups. They, however, reduced in weight. Amygdalic histology with the hematoxylin and eosin (H&E) stain showed no significant neuro-architectural difference across all treatment groups. **Conclusion**: Concurrent and prophylactic oral administration of *Nigella sativa* oil proved to be therapeutic in the treatment of essential tremor in BALB/c mice, as demonstrated in the PNSC and NSP mice. Use of Golgi and Nissl markers are recommended for further histological appreciation.

KEYWORDS: Essential tremor, Amygdala, Phenol, *Nigella sativa*, Cognitive dysfunction

S1011

Changes in Cyto-architecture and Short-term Memory Impairment in Hippocampus of Rats treated with Ethanol Extract of *Cannabis Sativa*

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Introduction: *Cannabis Sativa* is the most widely used illicit substance globally. The present work aimed to evaluate the effects of *Cannabis Sativa* on the histomorphological changes and short-term memory in adult Wistar rats. **Methodology:** Twenty male adult Wistar rats were randomly divided into four groups of five animals each. Group I served as the control group, which receives distilled water. While groups II, III, and IV were treated orally with 375 mg/kg, 750 mg/kg, and 1500 mg/kg body weight of *Cannabis Sativa* respectively, for fourteen (14) days. Animals were euthanized using ketamine. The brain was fixed in Bouin's fluid, and tissues were processed histologically using H and E stain. The novel object recognition task was carried out to evaluate the differences in the exploration time of novel and familiar objects as a means of assesing short term memory. **Results:** The histological observation revealed distortion of the pyramidal cells and congestion, nuclei condensation, loss of nuclei, and defragmented nuclei of the hippocampal cells were observed. The short-term memory shows a significant decrease in time taken to explore the novel objects among animals treated with 1500mg/kg of cannabis extract ($P < 0.001$) when compared to the control. Time taken to explore the familial object was higher among groups that received 750 and 1500mg/kg of ethanol extract of *Cannabis Sativa* with a lower score in the novel object recognition test when compared to the control. Treated groups showed a significant increase in cell volume and a decrease in cell number when compared with the control. **Conclusion:** It was concluded from this study that *Cannabis Sativa* has degenerative effects on the hippocampus, decreases cell number, increases cell volume, and distorts the pyramidal cells of the hippocampus, which could cause memory and learning impairment in male adult Wistar rats.

Keywords: cannabis, short-term memory, hippocampus, novel and familial object

S1012

Anatomy Education and Research: Its Implications on Health Care Delivery

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Introduction: Human anatomy is a bedrock of medical education, and its knowledge is critical to understanding normal bodily function and how disease conditions lead to the modification of structure and function. However, recent reports from around the world have claimed that anatomy education in universities is in crisis. This has subsequently led to the allocation of inadequate time to the anatomical syllabus, therefore decreasing the opportunities to dissect cadavers. **Aim:** The aim of this study is to evaluate the perceptions of students offering Anatomy and anatomy educators in relation to health care delivery. **Materials and Methods:** A quantitative survey was conducted on preclinical (n = 650) and clinical medical students (n = 300) at Private Universities and anatomy educators located in the Western Part of Nigeria. Areas addressed include the structure of training, curriculum duration, the individual's perception of anatomy in relation to medical education, and clinical practice. **Results**: Preclinical students were more likely to appreciate anatomy as a pillar of medical science than the clinical students. The new house officers highlighted the difficulty faced by educational institutions in tailoring anatomy education to better prepare students for the tasks lying ahead of them in the clinical role. **Conclusions**: Anatomy is critical for improving the clinical skills of medical students who eventually become future clinicians. The decline in anatomy education is hazardous not only to the medical profession but also to society. Medical curricula should be reformed, and maximum allocation of resources should be proposed for anatomy education to improve the standard of medical and health care practitioners.

Keywords: Anatomy, Medical students, Education, Teaching, Health care.

S1013

The Impacts of Caffeine on the Viability of the Optic Nerve and Retinal Cells in Hypertonic Saline and Hyaluronic Acid Models of Glaucoma

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Introduction: Glaucoma is a neurodegenerative disease caused by continuous damage to the retina and optic nerve, leading to blindness globally. Caffeine, as a central nervous system stimulant, is widely consumed for its psychoactive effects globally. The aim of this study is to determine the role of caffeine on elevated intraocular pressure (IOP) in the optic nerve and retina following hyaluronic acid and hypertonic saline injection. **Materials and Methods:** A total of twenty (20) adult Long Evans rats were distributed randomly into five (n=5) groups. Control one received a single dose (50 ul) of dH_20. Group two received a single dose of 25ul of HA, Group three received a single dose of 50ul of hypertonic saline, Group four received 25ul of HA and 20mg/kg of caffeine. Group five received an intraperitoneal injection of 20mg/kg of caffeine only. All IOP measurements were performed in conscious rats with the aid of an IOP restriction chamber. Markers of oxidative stress (MDA, SOD), histology, and immunohistochemistry were also carried out on the retina and optic nerve. **Results:** The results from this study revealed that HA and HS produced a marked elevation of intraocular pressure and a Substantial loss of retinal ganglionic cells, and optic nerve damage was observed, but caffeine demonstrated an ameliorative role in reviving the RGC. **In conclusion,** it was revealed that caffeine was more effective in reducing IOP in the hypertonic saline model of elevated IOP.

Keywords: Glaucoma, Caffeine, Hypertonic Saline, Oxidative Stress, Immunohistochemistry.